

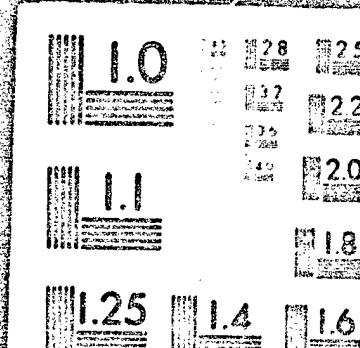
100-2
89670

A A E C

L I B B I B

370

A M P T I A C



DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

Reproduced From
Best Available Copy

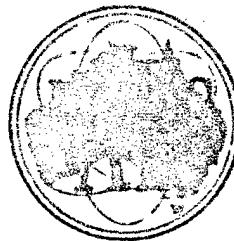
SOLUTION TEST CHART
43-01-STAR-AWEN-100-1

20000229 092

+ 89670

AAEC LIB/BIB NO. 370

AAEC LIB/BIB NO. 370



AUSTRALIAN ATOMIC ENERGY COMMISSION
RESEARCH ESTABLISHMENT
LUCAS HEIGHTS

FRACTURE BEHAVIOUR OF UNIRRADIATED AND IRRADIATED STEELS

A bibliography compiled by

P. JEAN (CEUE)

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

October 1972

IERN 0 642 99548 6

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

BLANK PAGE

FRACTURE BEHAVIOUR OF UNIRRADIATED AND IRRADIATED STEELS

A bibliography of relevant work from the
staff of the Naval Research Laboratories, Washington, D.C.

1951 - 1972

Compiled by P. Jean Geue

October 1972

The search was author rather than subject orientated. It includes publications of staff who have left NRL but continued publishing in the same field. Relevant publications of F.A. Smidt Jr. (Battelle-Northwest then NRL) and W.F. Brown Jr. (NASA Lewis Research Center) have been included, by exception, for the full period as their work has been allied with that of NRL. Authors with no affiliations after their name are from NRL.

Literature search covers the period 1951 - September 1972.

Abstracts searched were:

Nuclear Science Abstracts (NSA) 1951 - 1972 (19)

Engineering Index (EI) 1953 - 1972 (5) excluding 1971 and January 1972

Metallurgical Abstracts (MA) 1950/51 - 1965 excluding 1955/56

Metals Abstracts (MA) 1969 - 1972 (7)

Scientific and Technical Aerospace Reports (STAR) 1963 - 1972 (15)

ASME Transactions Cumulative Index 1950 - 1970

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

BLANK PAGE

National Library of Australia card number and ISBN 0 642 92548 6

The following descriptors have been selected from the INIS Thesaurus to describe the subject content of this report for information retrieval purposes. For further details please refer to IAEA-INES-12 (INES: Manual for Indexing) and IAEA-INES-13 (INES: Thesaurus) published in Vienna by the International Atomic Energy Agency.

**BIBLIOGRAPHIES; FRACTURE PROPERTIES; FRACTURES; IRRADIATION;
RADIATION EFFECTS; STEELS**

BIBLIOGRAPHIES AND REVIEW ARTICLES

BROWN, B.P.

ARPA coupling program on stress corrosion cracking. 2nd ed.
Final report. 200p. revised
(abstracts of achievements; references)
NRL-7329 AD-733442 ARPA order 878 (27 October 1971)
STAR 10 (9) p.1220 N72-18555 (1972)

DEFENSE DOCUMENTATION CENTER, Defense Supply Agency, Cameron Station, Alexandria, Virginia

Embrittlement, a DDC bibliography, March 1963-September 1971. 100p.
(revises and updates an earlier bibliography AD-708900
on the same subject)
DDC-TAS-72-21-1 AD-742000 (May 1972)

CEUE, P. Jean

The effect of neutron irradiation on mild and low alloy steel; a bibliography, 1969-June 1971. 32p.
AEC LIB/BIB No. 302 (July 1971)

PELLINI, W.S.

Evolution of engineering principles for fracture-safe design of steel structures. 111p.
NRL-6957 AD-697631 (23 September 1969)
STAR 8 (9) p.1744 N70-22414 (1970)

BIBLIOGRAPHIES AND REVIEW ARTICLES

SACHS, G. and BROWN, W.F. Jr. (Syracuse Univ. N.Y., Research Inst. and National Advisory Committee for Aeronautics)

The notch sensitivity of high temperature alloys.

Literature survey. 97p.

NP-8428 (June 1957)

NSA 14: 11985 (1960)

STEELE, L.E.

Neutron irradiation embrittlement of reactor pressure vessel steel. 142 refs.

At. Energy Review 7 (2) 3-133 (1969)

NSA 23: 41683 (1969)

1972

CROCKER, Thomas W.

Basic concepts for design against structural failure by fatigue crack propagation. 38p.

NRL-7347 AD-736618 (13 January 1972)

STAR 10 (13) p.1813 N72-22926 (1972)

FREED, C.N.; SULLIVAN, A.M. and STOOP, J.

Crack growth resistance characteristics of high strength sheet alloys. Final report. 23p.

NRL-7374 AD-738424 (31 January 1972)

STAR 10 (15) p.2043 N72-24604 (1972)

KRAFFT, Joseph M.; LAMB, Curtis L. and SIMMONDS, Kirth E.

Corrosion-and-creep-induced instability modeling of fatigue-cracking in various alloys. Interim report. 42p.

NRL-MR-2399 AD-737630 (February 1972)

STAR 10 (15) p.2042 N72-24599 (1972)

SERPAN, C.Z. Jr.; SMITH, H.H. and PIEPER, A.B.

Effect of cyclotron-injected helium on fatigue characteristics of stainless steel

Trans. Amer. Nucl. Soc. 15 (1) 251-2 (June 1972)

18th annual ANS conference, Las Vegas (18 June 1972)

NSA 26 (18) 43606 (1972) no abstract

SERPAN, C.Z. Jr. (NRL) and McELROY, W.N. (WADCO Corp., Richland, Wash.)

Elevated-temperature damage functions for neutron embrittlement in pressure vessel steels

Nucl. Technol. 13 (2) 185-93 (February 1972)

NSA 26 (5) 9835 (1972) MA 5 (5) 16-0169 (1972)

1972

SMIDT, F.A. Jr. and SPRAGUE, J.A.

Solute effects on defect microstructure in irradiated iron
Trans. Amer. Nucl. Soc. 15 (1) 244-5 (June 1972)
18th annual ANS conference, Las Vegas (18 June 1972)
NSA 26 (18) 43000 (1972) no abstract

STEELE, L.E.

Nuclear reactor containment and nuclear materials fracture
toughness standards
Trans. Amer. Nucl. Soc. 15 (1) 225-6 (June 1972)
18th annual ANS conference, Las Vegas (18 June 1972)
NSA 26 (18) 44656 (1972) no abstract

STEELE, L.E. and HAWTHORNE, J.R.

Standard specifications for minimizing radiation effects
in nuclear structural metals
Trans. Amer. Nucl. Soc. 15 (1) 226 (June 1972)
18th annual ANS conference, Las Vegas (18 June 1972)
NSA 26 (18) 43596 (1972) no abstract

1971

BEACHEM, C.D.; KIES, J.A. and BROWN, B.F.

A constant K specimen for stress corrosion cracking tests
Mater. Res. Stand. 11 (4) 30 (April 1971)
MA 4 (8) 22-0754 (1971)

1971

BEACHEM, C.D.; LUPTON, T.C. and BROWN, B.F.

A new technique for examining microscopic fracture processes
at crack tips

Met. Trans. 2 (1) 141-3 (January 1971)

MA 4 (7) 31-1392 (1971)

BEMENT, A.L. Jr. (Battelle-Northwest, Richland, Wash.);

HOAGLAND, R.G. (Battelle Memorial Inst., Columbus) and

SMIDT, F.A. Jr. (NRL)

Fracture mechanisms and radiation effects

Fracture; an advanced treatise. vol. III ed. H. Liebowitz.

New York, Academic (1971) pp.535-87

NSA 25: 27270 (1971) EI 1972 (4) p.210 no. 20393

BROWN, B.F.

ARPA coupling program on stress corrosion cracking. 2nd ed.

Final report. 200p. revised

NRL-7329 AD-733442 ARPA order 878 (27 October 1971)

STAR 10 (9) p.1220 N72-18555 (1972)

CROCKER, T.W.

Effects of tension-compression cycling on fatigue crack
growth in high strength alloys. 11p.

NRL-7220 (27 October 1970)

J. Eng. Ind. (Trans. ASME B) 93 (4) 893-904 (November 1971)

NSA 25: 22053 (1971) and 26 (13) 31521 (1971)

EI 1972 (5) p.350 no. 27120

GOODE, R.J. and JUDY, R.W. Jr.

Fracture-safe design of aluminium and titanium alloy structures.

34p.

NRL-7281 (3 November 1971)

NSA 26 (10) 25080 (1972)

1971

HAWTHORNE, J.R.

Postirradiation dynamic tear Charpy-V performance of 12-in.
thick A533-B steel plates and weld metal
Nucl. Eng. Des. 1: (1) 116-30 (1971)
NSA 25: 55586 (1971)

HAWTHORNE, J.R. (NRL) and FORTNER, E. (Alliance Research Lab.
Babcock & Wilcox)

Radiation and temper embrittlement processes in advanced
reactor weld metals. 8p.
ASME paper 71-WA/PVP-11 for meeting (28 November-2 December 1971)
EI 1972 (4) p.225 no. 23818 no abstract

HAWTHORNE, J.R.

Temperature dependence of phosphorus influence on radiation
embrittlement sensitivity of reactor vessel steels
Trans. Amer. Nucl. Soc. 14 (1) 165-6 (June 1971)
17th annual meeting ANS, Boston (13 June 1971)
NSA 25: 40082 (1971) no abstract MA 4 (11) 16-0360
(1971)

IRWIN, G.R. and PARIS, P.C. (Lehigh Univ., Bethlehem, Pa.)

Fundamental aspects of crack growth and fracture
Fracture 3 (Engineering fundamentals and environmental effects)
1-46 (1971)
EI 1972 (4) p.198 no. 21044

JUDY, R.W. Jr. and GOODE, R.J.

Fracture extension resistance (R-curve) characteristics
for three high strength steels. 18p.
NRL-7361 AD-737192 (2 November 1971)
NSA 26 (8) 19906 (1972) no abstract STAR 10 (14) p.1399
N72-23573 (1972)

1971

JUDY, R.W. Jr. and GOODE, R.J.

Stress-corrosion cracking of high-strength steels and
titanium alloys. 32p.

NRL-7371 (23 November 1971)

NSA 26 (13) 31400 (1972)

KRAFFT, J.M. and GRAY, R.A.

Effects of neutron irradiation on bulk and micro flow-fracture
behaviour of pressure vessel steels

Practical application of fracture mechanics to pressure-vessel
technology, conference held London (3-5 May 1971). London,
Institution of Mechanical Engineers (1971) pp.93-102

NSA 26 (14) 33974 (1972)

KRAFFT, J.M.

Tests for fracture strength, static to impact
Measurement of mechanical properties. (Techniques of metals
research, vol. 5 II) New York, Wiley-Interscience (1971)
pp.1-102
MA 4 (10) 22-1017 (1971)

LANGE, E.A.

Fracture toughness: an engineering design parameter
Met. Eng. Q. 11 (4) 31-9 (November 1971)
MA 5 (3) 22-2016 (1972)

1971

LOSS, F.J.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr. and PUZAK, P.P.

Analysis of radiation-induced embrittlement gradients on fracture characteristics of thick-walled pressure vessel steels. 9p.

CONF-710512-8 ASME paper-71-PVP-7 (28 January 1971)

J. Eng. Ind. (Trans. ASME B) 93 (4) 1007-15 (November 1971)
1st national congress on pressure vessels and piping,
San Francisco (10 May 1971)

NSA 25: 42841 (1971) and 26 (13) 51560 (1972)

MA 5 (5) 16-0118 (1972) EI 1972 (5) p.230 no. 27076

LOSS, F.J.

Effect of mechanical constraint on the fracture characteristics of thick-section steel

Nucl. Eng. Des. 17 (1) 16-31 (1971)

NSA 25: 55512 (1971)

LOSS, F.J.

Engineering significance of statistical and temperature induced fracture mechanics toughness variations on fracture-safe assurance. Interim report. 23p.

NRL-7353 AD-734665 (2 December 1971)

STAR 10 (11) p.1487 N72-20500 (1972)

LOSS, F.J.; HAWTHORNE, J.R. and SERPAN, C.Z. Jr.

Reassessment of fracture-safe operating criteria for reactor vessel steels based on Charpy-V performance. 28p.

NRL-7152 (8 September 1970)

J. Basic Eng. 93 (2) 247-58 (June 1971)

NSA 24: 46714 (1970) and 26 (1) 293 (1972)

MA 4 (11) 31-2609 (1971)

1971

PELLINI, W.S.

Integration of analytical procedures for fracture-safe
design of metal structures. 79p.

NRL-7251 AD-723190 (19 January 1971)

NSA 25: 39623 (1971) STAR 9 (19) p.3187 N71-31945
(1971)

PELLINI, William S.

Principles of fracture safe design. I and II
Welding J. 50 (3) 91s-109s (March 1971) and 50 (4) 147s-62s
(April 1971)
MA 4 (9) 22-0925 and 55-0857 (1971)

SERPAN, Charles Z. Jr.

Implications of the differences in neutron spectra
predicted for reactor pressure walls by transport and the
PINC codes
Nucl. Eng. Des. 16 (1) 24-34 (May 1971)
NSA 25: 51217 (1971)

SERPAN, C.Z. Jr.

Measured versus calculated fluence extrapolations for
reactor vessel surveillance analysis
Trans. Amer. Nucl. Soc. 14 (1) 166 (June 1971)
17th annual meeting ANS, Boston (13 June 1971)
NSA 25: 41622 (1971) no abstract

1971

SERPAN, C.Z. Jr.

Reliability of fluence-embrittlement projections for
pressure vessel surveillance analysis

Nucl. Technol. 12 (1) 108-18 (September 1971)

NSA 25: 44116 (1971)

SERPAN, C.Z. Jr.

Temperature and neutron-spectral dependence of pressure
vessel steel embrittlement

Trans. Amer. Nucl. Soc. 14 (2) 586-7 (October 1971)

Joint ANS meeting, Miami Beach (17 October 1971)

NSA 26 (2) 2564 (1972) no abstract

SERPAN, C.Z. Jr. and WATSON, H.E.

Through-thickness neutron fluence and embrittlement
gradients in reactor pressure vessels

Nucl. Technol. 11 (4) 592-601 (August 1971)

NSA 25: 41589 (1971) MA 4 (12) 16-0402 (1971)

SHAHINIAN, P.; SMITH, H.H. and WATSON, H.E.

Fatigue crack growth in type 316 stainless steel at high
temperature

J. Eng. Ind. (Trans. ASME B) 93 (4) 976-80 (November 1971)

NSA 26 (13) 31523 (1972) EI 1972 (5) p.345 no. 27551

MA 5 (5) 31-1013 (1972)

1971

SMIDT, F.A. Jr.

Correlation of microstructure and strength during stage III annealing of irradiated vanadium

Radiat. Eff. 10 (4) 205-14 (September 1971)

NSA 26 (5) 9827 (1972)

SMIDT, F.A. Jr. and STEEL, L.E.

Residual elements and irradiation embrittlement. 22p.

NRL-7310 (25 May 1971)

NSA 25: 55577 (1971)

STEELE, L.E.; SERPAN, C.Z. Jr.; WATSON, H.E.; HAWTHORNE, J.A. and SMIDT, F.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 November 1970-31 January 1971.

34p.

NRL-MR-2214 AD-721068 (15 February 1971)

NSA 25: 49481 (1971) STAR 9 (15) p.2448 N71-27296
(1971)

STEELE, L.E.; HAWTHORNE, J.R.; SHAHINIAN, P.; SMITH, H.H.; SMIDT, F.A. Jr.; WATSON, H.E.; SPRAGUE, J.A. and SERPAN, C.Z. Jr.

Irradiation effects of reactor structural materials.

Quarterly progress report, 1 August-31 October 1971. 52p.

NRL-MR-2369 AD-735872 (15 November 1971)

STAR 10 (12) p.1642 N72-21659 (1972)

1971

STEELE, L.E. and SERPAN, C.Z. Jr.

Procedures for interpreting the structural implications of radiation-damage surveillance results on nuclear pressure vessels. 22p.

NRL-7358 (6 October 1971)

NSA 26 (9) 20933 (1972)

1970

ACHTER, H.R.

The gas adsorption model for crack propagation
Report of NRL progress (June 1970) p.15-19
STAR 8 (18) p.3361 N70-33647 (1970)

BROWN, B.F.

ARPC coupling program on stress-corrosion cracking. Final technical report. 192p.
NRL-7168 AD-713059 ARPC order 878 (21 September 1970)
STAR 9 (3) p.396 N71-13397 (1971)

BROWN, B.F.

Stress-corrosion cracking: a perspective review of the problem.
27p.
NRL-7130 AD-711589 ARPA order 878 (16 June 1970)
STAR 9 (2) p.243 N71-11696 (1971)

1970

BROWN, W.F. Jr. and SRAWLEY, J.E. (NASA Lewis Research Center, Cleveland)

Commentary on present practice

ASTM special technical publication 463: 216-48 (1970)

Review of developments in plane strain fracture toughness testing, ed. W.F. Brown Jr.

MA 4 (3) 22-0293 (1971)

COOLEY, L.A. and LANGE, E.A.

Vertical drop-weight machine for conducting drop-weight NDT, drop-weight tear and dynamic tear tests. Final report. 17p.

NRL-6993 AD-700934 (16 January 1970)

STAR 8 (13) p.2363 N70-26977 (1970)

CROCKER, T.W. and LANGE, E.A.

How yield strength and fracture-toughness considerations can influence fatigue-design procedures for structural steels

Welding J. 49 (10) 488s-96s (October 1970)

MA 4 (3) 31-0547 (1971)

CROCKER, T.W. and LANGE, E.A.

The influence of yield strength and fracture toughness on fatigue design procedures for structural steels. Final report. 23p.

NRL-7036 AD-702737 (19 February 1970)

STAR 8 (20) p.3827 N70-36338 (1970)

1970

FORTNER, Edward (Babcock and Wilcox Co., Alliance Ohio);
HAWTHORNE, J.R. (NRL) and GRANT, S.P. (Babcock & Wilcox Co.,
Lynchburg, Va)

Experimental development of radiation resistant 85,000 psi
yield strength reactor vessel low alloy steel filler metal
(preirradiation evaluation). 8p.

CONF-700421-1 New York, ASME (18 February 1970)

ASME metal engineering conference and ANS welding show, Cleveland,
Ohio (April 1970)

NSA 24: 48861 (1970)

FREED, C.N.

Application of side grooves in the determination of K_{Ic} for
high-strength metals

ISI publication 120: 29-41 (1970)

Fracture toughness of high-strength materials: theory and
practice, conference, Sheffield (March 1968)

MA 4 (1) 22-0017 (1971)

FREED, C.N.

Effect of short fatigue cracks on plane strain fracture
toughness

Eng. Fracture Mechanics 1 (4) 729-31 (April 1970)

MA 3 (9) 31-1712 (1970)

1970

FREED, C.N. and PUZAK, P.P.

Mechanical considerations in fracture characterization of
narrow-gap weldments. 17p.

NRL-6877 AD-687402 Interim report (April 1969)

Welding J. 49 (4) 141s-7s (April 1970)

STAR 7 (19) p.3596 N69-33790 (1969)

MA 3 (8) 55-6623 (1970) EI 1970 p.3780 no. 50286

GRAY, Robert A. Sr.

Charpy-V notch ductility characteristics of neutron-irradiation
A537-B and A350-LF2 steel weldments. 17p.

NRL-7006 AD-701322 (16 January 1970)

STAR 8 (13) p.2398 N70-27015 (1970)

GRAY, Robert A. Jr. and HAWTHORNE, J. Russell

Mechanical properties behaviour of neutron irradiated
12 Ni-5 Cr-3 Mo margin steel plate and companion weld metal
Nucl. Eng. Design 11: 381-92 (April 1970)
NSA 24: 32473 (1970)

HAWTHORNE, J. Russell

Demonstration of improved radiation embrittlement resistance
of A533-B steel through control of selected residual elements.
33p.

NRL-7121 AD-714166 (29 May 1970)

ASTM special technical publication 484: 96-127 (1970)

Irradiation effects on structural alloys for nuclear reactor
applications, symposium, Niagara Falls (Toronto) (29 June-1 July
1970)

NSA 25: 2757 and 42907 (1971) MA 5 (5) 16-0127 (1972)

STAR 9 (6) p.870 N71-16033 (1971)

1970

HAWTHORNE, J. Russell

Neutron embrittlement characteristics of A533-B electroslag weldments

Trans. Amer. Nucl. Soc. 13: 613-14 (November 1970)

ANS meeting, Washington (November 1970)

NSA 25: 4833 (1971) no abstract

HAWTHORNE, J.R.

Postirradiation Charpy-V and dynamic tear shelf level performance of 12-in. thick A533-B plates and weld metal. 12p.

NRL-MR-2114 AD-706004 (April 1970)

NSA 25: 701 (1971) STAR 8 (18) p.3363 N70-33969 (1970)

HAWTHORNE, J.R. (NRL) FORTNER, E. and GRANT, S.P. (Babcock & Wilcox Co.)

Radiation resistant experimental weld metals for advanced reactor vessel steels

Welding J. 49: 483s-60s (October 1970)

NSA 24: 48867 (1970) MA 4 (3) 55-0153 (1971)

HAWTHORNE, J. Russell

Trends in Charpy-V shelf energy degradation and yield strength increase of neutron-embrittled pressure vessel steels. 28p.

NRL-7011 AD-700233 (21 October 1969)

Nucl. Eng. Design 11: 427-46 (April 1970)

NSA 24: 19470 and 30000 (1970) STAR 8 (12) p.2220
N70-25466 (1970)

1970

IRWIN, G.R. (Lehigh Univ., Bethlehem, Pa)

Fracture strength of relatively brittle structures and materials

J. Franklin Inst. 290 (5) 513-21 (December 1970)

MA 4 (9) 31-1745 (1971)

JUDY, R.W. Jr.; PUZAK, P.P. and LANCE, E.A.

Characterization of fracture toughness of 5 Ni-Cr-Mo-V steel by Charpy-V notch and dynamic tear tests. 14p.

NRL-6873 AD-687075 (13 December 1968)

Welding J. 49 (5) 201s-6s (May 1970)

NSA 23: 24859 (1969) MA 3 (10) 22-0868 (1970)

EI 1970 p.3700 no. 50287 STAR 7 (18) 3394 N69-33110
(1969)

KARNOSKI, P.J. Jr. (Brown & Root, Inc., Houston, Texas);

FRETAGUE, W.J. (Sanders Nuclear Corp. Nashua, New Hampshire);

POTAPOUS, Uldis and STEELE, L.E. (NRL)

Stainless steel reactor pressure vessels

Nucl. Eng. Design 11: 347-67 (April 1970)

NSA 24: 27786 (1970)

KRAFFT, J.M.; HETTCHE, L.R.; SULLIVAN, A.M. and LOSS, F.J.

Fracture-flow relationships for A533-B pressure-vessel steel

J. Eng. Ind. (Trans. ASME B) 92 (2) 330-8 (May 1970)

MA 3 (10) 31-1851 (1970) EI 1970 p.2709 no. 44276

1970

KRAFFT, J.M. and GRAY, R.A. Jr.

Role of iron in fracture of irradiated pressure vessel steel

Report of NRL progress (June 1970) pp.1-14

STAR 8 (18) p.3361 N70-33646 (1970)

LANGE, E.A. and LOSS, F.J.

Dynamic tear energy: a practical performance criterion for
fracture resistance. 20p.

NRL-6975 AD-699143 (19 August 1969)

ASTM special publication 466: 241-58 (1970)

Impact testing of metals symposium at 72nd annual ASTM meeting,
Atlantic City, N.J. (22-27 June 1969)

NSA 24: 9990 (1970) MA 3 (9) 22-0774 (1970)

STAR 8 (11) p.2037 N70-24839 (1970)

LANGE, E.A.

Fracture resistance and quality assurance of metal structures
An international approach for the seventies. Materials
technology. I. 2nd interamerican conference on materials
technology, Mexico City (24-27 August 1970) New York, United
Engineering Center (1970) pp.480-91

MA 4 (12) 31-2870 (1971) EI 1970 p.1934 no. 57238

LANGE, E.A.

Fracture toughness of structural metals. 57p.

ASM technical report no. AWS70-1.2 (1970)

MA 4 (3) 31-0595 (1971)

1970

LANGE, E.A.

Fracture toughness of structural metals. Interim report. 29p.
 NRL-7046 AD-707338 (4 May 1970)
 STAR 8 (21) p.4026 N70-38077 (1970)

LANGE, Eugene A.; PUZAK, Peter P. and COOLEY, Laurence A.

Standard method for the 5/8 in. dynamic tear test. Interim report. 4lp.
 NRL-7159 AD-712494 (27 August 1970)
 STAR 9 (3) p.393 N71-13153 (1971)

LANGE, E.A.

Use fracture toughness to avoid catastrophic failure
 Mater. Eng. 72 (3) 26-8 (September 1970)
 MA 4 (3) 31-0548 (1971)

LOSS, F.J.

Dynamic fracture characteristics of thick section steel
 Nucl. Met. Met. Soc. AIME 16: 98-118 (1970)
 Symposium on the technology of pressure-retaining steel components, Vail Village, Colo (September 1970)
 NSA 25: 22073 (1971)

LOSS, F.J.

Dynamic tear test investigations of the fracture toughness of thick section steel. Heavy-section steel technology program technical report no. 7. 54p.
 NRL-7056 AD-707711 HSSTP-TR-7 (20 January 1970)
 NSA 24: 39632 (1970) STAR 9 (6) p.869 N71-19891 (1971)
 and 8 (22) p.4141 N70-40040 (1970)

1970

PELLINI, W.S. and JUDY, R.W. Jr.

Significance of fracture extension resistance (R-curve) factors in fracture-safe design for nonfrangible metals. Special summary and interpretive report. 44p.
NRL-7187 AD-716407 (19 October 1970)
STAR 9 (9) p.1476 N71-19891 (1971)

PUZAK, P.P. and LANGE, E.A.

Fracture-toughness characteristics of the new high-strength steels. 20p.
ASM technical paper no. W70-7.2 (1970)
MA 3 (6) 31-1043 (1970)

PUZAK, P.P. and LANGE, E.A.

Fracture toughness characteristics of the new weldable steels of 180,000-210,000 lb/in² yield strengths. 18p.
ASM technical report no. P9-20.6 (1969)
Metals Eng. Q. 10 (1) 31-4 (1970)
MA 3 (4) 31-0661 and (7) 31-1205 (1970)
EI 1970 p.3383 no. 40848

SANDOZ, G.; FUJII, C.T. and BROWN, B.F.

Solution chemistry within stress-corrosion cracks in alloy steels
Corrosion Sci. 10 (12) 839-45 (December 1970)
MA 4 (8) 35-0754 (1971)

1970

SERPAV, Charles Z. Jr.

Analysis of neutron-embrittlement and flux-density
considerations of the army SM-1 reactor pressure vessel. 24p.
NRL-7101 AD-709898 (22 June 1970)
NSA 25: 6145 (1971)

SERPAN, Charles Z. Jr.

Damage threshold for pressure vessel steel embrittlement
lower than 1 MeV
Trans. Amer. Nucl. Soc. 13: 610-11 (November 1970)
ANS meeting, Washington (November 1970)
NSA 25: 4832 (1971) no abstract

SERPAN, C.Z. Jr.; WATSON, H.E. and HAWTHORNE, J.R.

Interaction of neutron and thermal environmental factors
in the embrittlement of selected structural alloys for
advanced reactor application
Nucl. Eng. Design 11: 368-80 (April 1970)
NSA 24: 32472 (1970)

SERPAN, Charles Z. Jr. and WATSON, Henry E.

Mechanical property and neutron spectral analysis of the Big
Rock Point Reactor pressure vessel
Nucl. Eng. Design 11: 393-415 (April 1970)
NSA 24: 29998 (1970)

1970

SERPAN, C.Z. Jr. (NRL) and MORGAN, W.C. (Battelle-Northwest)

Neutron dosimetry for reactor pressure vessel applications
ASTM special technical publication 484: 3-19 (1970)

Symposium on irradiation effects on structural alloys for nuclear
reactor applications, Niagara Falls, Canada (June-July 1970)
NSA 25: 4417 (1971) MA 5 (5) 22-0387 (1972)

SERPAN, Charles Z. Jr.

SM-1A reactor pressure vessel surveillance: irradiation of
follow-on capsules in the SM-1 reactor. 15p.
NRL-7211 AD-717618 (14 December 1970)
NSA 25: 16547 and 49480 (1971) STAR 9 (11) p.1793
N71-21968 (1971)

SERPAN, Charles Z. Jr.

Through-thickness ductility in an irradiated reactor
pressure vessel wall
Trans. Amer. Nucl. Soc. 13: 611-13 (November 1970)
ANS meeting, Washington (November 1970)
NSA 25: 6146 (1971) no abstract

SIMONS, R.L.; KELLOGG, L.S. (WADCO Corp., Hanford Eng. Devel. Lab.,
Richland, Wash.); BARRY, K.H. (Westinghouse Electric Corp.,
Pittsburg) and SERPAN, C.Z. Jr. (NRL)

Comparison of measured and calculated integral fluxes and
spectra in a pressure vessel mockup
Trans. Amer. Nucl. Soc. 13: 684 (November 1970)
ANS meeting, Washington (November 1970)
NSA 25: 6213 (1971) no abstract

1970

SMIDT, F.A. Jr.

Comments on dislocation structures in irradiated and strained iron

Scr. Met. 4: 517-20 (July 1970)

NSA 24: 39674 (1970)

SMIDT, F.A. Jr.

Dislocation channeling in irradiated metals. 14p. and 17p.

NRL-7078 AD-710358 (24 February 1970 and 3 June 1970)

NSA 24: 42753 (1970) and 25: 4809 (1971)

SMIDT, F.A. Jr.

Unusual interstitial aggregates in vanadium irradiated at 0.15 Tm

Trans. Amer. Nucl. Soc. 13: 594-7 (November 1970)

ANS meeting, Washington (November 1970)

NSA 25: 4828 (1971)

SMITH, J.A.; PETERSON, M.H. and BROWN, D.F.

Electrochemical conditions at the tip of an advancing stress corrosion crack in AISI 4340 steel

Corrosion 26 (12) 539-42 (December 1970)

NSA 4 (8) 35-0903 (1971)

SHAWLEY, J.E.; SWEDLOW, J.L. and ROBERTS, E. Jr. (NASA Lewis Research Center)

On the sharpness of cracks compared with walls' COD. 6p.

NASA-TH-X-52904 (September 1970)

STAR 8 (24) p.4614 N70-42100 (1970)

1970

STEELE, L.E. and SERPAN, G.Z. Jr.

Analysis of reactor vessel radiation effects surveillance programs. 275p.

ASTM special technical publication 481 (1970)

NSA 25: 32755 and 34339 (1971)

STEELE, Lendell E.

Critical aspects of neutron irradiation embrittlement of pressure vessel steels and weldments

Nucl. Met. Met. Soc. AIME 16: 270-91 (1970)

Symposium on the technology of pressure-retaining steel components, Vail Village, Colo. (September 1970)

NSA 25: 22122 (1971)

STEELE, Lendell E.

Influence of composition on the fracture toughness of commercial nuclear vessel welds. 20p.

MRL-7095 AD-709554 CONF-700812-1 (11 March 1970 and 23 June 1970)

An international approach for the seventies. Materials technology. I. 2nd interamerican conference on materials technology, Mexico City (24-27 August 1970). New York, United Engineering Center (1970) pp.414-25

NSA 24: 44741 (1970) MA 4 (12) 55-1157 (1971)

STAR 8 (24) p.4558 (1970) and 9 (5) p.693 N71-15425 (1971) EI 1970 p.2238 no. 57664

1970

STEELE, L.E.

Irradiation effects studies and surveillance of nuclear reactor pressure vessels in the USA. 10p.

IAEA-117 paper 2 CONF-690727-12 (1970)

Report of meeting of specialists, Tokyo (21 July 1969)

NSA 25: 40064 (1971)

STEELE, L.E.

Irradiation effects studies and surveillance of nuclear reactor pressure vessels in the USA. 10p.

IAEA-117 paper 1a CONF-690727-13 (1970)

Report of a meeting of specialists, Tokyo (21 July 1969)

NSA 25: 40063 (1971)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; SHIDT, F.A. Jr.
and WATSON, H.E.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 November 1969-31 January 1970. 51p.

NRL-MR-2088 AD-703617 (15 September 1970)

NSA 24: 34920 (1970) STAR 8 (16) p.3020

N70-31700 (1970)

STEELE, L.E.; SERPAN, C.Z. Jr.; HAWTHORNE, J.R.; KRAFFT, J.M. and
GRAY, R.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 February-30 April 1970. 54p.

NRL-MR-2126 AD-707336 (15 May 1970)

NSA 25: 702 (1971) STAR 8 (21) p.3976 N70-38242
(1970)

1970

STEELE, L.W.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr. and SMIDT, F.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 May-31 July 1970. 35p.

NRL-MR-2153 AD-711321 (15 August 1970)

STAR 9 (1) p.87 N71-10884 (1971)

STEELE, L.E.; SERPAN, C.Z. Jr.; LOSS, F.J.; HAWTHORNE, J.R. and PUZAK, P.P.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 August-31 October 1970. 61p.

NRL-MR-2181 AD-716405 (15 November 1970)

STAR 9 (9) p.1417 N71-19814 (1971)

STEELE, Lendell E.

Major factors affecting neutron irradiation embrittlement
of pressure-vessel steels and weldments. 22p.

NRL-7176 (7 August 1970)

NSA 25: 24606 (1971)

STEELE, L.E.

Structure and composition effects on irradiation sensitivity
of pressure vessel steels

ASTM special technical publication 484: 164-75 (1970)

Symposium on irradiation effects on structural alloys for nuclear
reactor applications, Niagara Falls, Canada (June-July 1970)

NSA 25: 42910 (1971) MA 5 (5) 16-0130 (1972)

1969

BROWN, B.F.

Interpreting laboratory stress-corrosion cracking data in materials section. 4p.

ASME-paper-69-MET-10 for meeting (31 March-2 April 1969) not listed in ASME index 1957-1970

EI 1969 p.1600 no. 32076

BROWN, B.F.; FUJII, C.T. and DAHLBERG, E.P.

Methods for studying the solution chemistry within stress corrosion cracks

J. Electrochem. Soc. 116 (2) 218-9 (February 1969)

MA 2 (6) 35-0522 (1969)

BROWN, B.F.

On the electrochemistry of stress-corrosion cracking of high strength steels. 4p.

Cabellcor, Tech. Report E76

4th International congress on metallic corrosion, Amsterdam (7-12 September 1969)

MA 2 (11) 35-1225 (1969)

BURSEY, R.T.; JONES, M.H. and BROWN, W.F. Jr. (Lewis Research Center, NASA, Cleveland, Ohio)

Clevis design for compact tension specimens used in plane strain fracture toughness testing. 18p.

NASA-TM-X-1796 (May 1969)

Mater. Res. Stand. 9 (6) 32-7, 71 (June 1969)

STAR 7 (13) p.2422 N69-25301 (1969) MA 2 (9) 22-0760 (1969)

1969

CROOKER, T.W. and LANGE, E.A.

Corrosion-fatigue crack - propagation studies of some new
high strength structural steels
ASME-paper-69-MET-5 for meeting (31 March-2 April 1969)
J. Basic. Eng. (Trans. ASME D) 91 (4) 570-4 (December 1969)
EI 1969 p.2869 no. 32067 MA 3 (5) 35-0456 (1969)

CROOKER, T.W. and LANGE, E.A.

Failure of structural alloys by slow crack growth. 13p.
NRL-6944 AD-696936 (14 October 1969)
STAR 8 (6) p.1067 N70-17076 (1979)

CROOKER, T.W.; LANGE, E.A. and EMRLICH, A.C.

The influence of yield strength and fracture toughness on
fatigue design procedures for structural steels. Effect of
thermal umklapp on the low temperature electrical resistivity
NAVSOP-3012 (September 1969)
Report of NRL progress
STAR 8 (7) p.1269 N70-19602 (1970)

FREED, C.N. and GOODE, R.J.

A correlation between fracture-toughness test procedures for
ferrous alloys
Pressure vessel technology. II. Materials and fabrication, 1st
international conference, Delft, Netherlands (29 September-2 October
1969). New York, ASME (1969) pp.723-31
MA 3 (12) 22-1073 (1970)

1969

FREED, C.N. and GOODE, R.J.

Correlation of two fracture toughness tests for titanium
and ferrous alloys. 28p.

NRL-6740 AD-683659 (16 January 1969)

STAR 7 (14) p.2539 N69-26304 (1969) CA 71: 41640t
(1969)

FREED, C.N. and GOODE, R.J.

Relationships between fracture toughness and estimated plastic
zone size in steel, titanium and aluminium alloys. Final
report. 20p.

NRL-6991 AD-700234 (28 November 1969)

STAR 8 (12) p.2219 N70-25387 (1970)

GRAY, R.A. Jr. and HAWTHORNE, J.R.

Behaviour of mechanical properties in neutron irradiated
12 Ni-5 Cr-3 Mo marginal steel plate and comparison weld
metals. 20p.

NRL-6945 AD-696057 (2 October 1969)

NSA 24: 1050 and 12432 (1970) STAR 8 (5) p.879
N70-15553 (1970)

GRAY, Robert A. Jr.

Charpy-V notch ductility characteristics of neutron-irradiated
A537-B and A350-LF2 steel weldments. 16p.

NRL-7006 (15 October 1969)

NSA 24: 19469 (1970)

1969

HAWTHORNE, J. Russell and POTAPOVS, U.

Notch ductility, tensile and neutron spectrum analysis of
PM-2A reactor pressure vessel
ASTM special technical publication 457 (1969)
Irradiation effects in structural alloys for thermal and fast
reactors, symposium at 71st annual meeting, San Francisco
(23-28 June 1968)
EI 1970 p.2233-4 no. 25087

HAWTHORNE, J. Russell and POTAPOVS, Uldis

Initial assessments of notch ductility behaviour of A533
pressure vessel steel with neutron irradiation. Final
report. 23p.

NRL-6772 AD-681373 (22 November 1968)
ASTM special technical publication 457: 113-34 (1969)
Symposium on irradiation effects in structural alloys for
thermal and fast reactors, San Francisco (June 1968)
NSA 23: 20517 and 27123 (1969) and 24: 29988 (1970)
STAR 7 (10) p.1716 N69-20711 (1969)

IRWIN, G.R. (Lehigh Univ., Bethlehem, Pa)

Basic concepts for dynamic fracture testing
J. Basic Eng. (Trans. ASME) 91 (3) 519-24 (September 1969),
MA 3 (2) 22-0068 (1970)

1969

JONES, Melvin H. and BROWN, William F. Jr. (NASA Lewis Research Center)

The influence of crack length and thickness in plane strain fracture toughness tests. 30p.

NASA-TM-X-1860 (August 1969)

STAR 7 (20) p.3813 N69-34916 (1969)

JUDY, R.W. Jr.; GOODE, R.J. and FREED, C.N.

Fracture toughness characterization procedures and interpretations to fracture-safe design for structural aluminium alloys. 16p.

Welding Research Council - Bul. Ser. 140 (May 1969)

EI 1970 p.149 (1970)

JUDY, R.W. Jr. and GOODE, R.J.

Procedures for stress-corrosion cracking characterization and interpretation to failure-safe design for high-strength steels. Final report. 16p.

NRL-6988 AD-703210 (29 November 1969)

STAR 8 (24) p.4613 N70-41841 (1970)

KRAFFT, J.M. (NRL) and MULHERN, J.H. (Metallurgy Research Lab., Frankford Arsenal, Philadelphia)

Tensile-ligament instability and growth of stress-corrosion cracks in high-strength alloys

AMS Trans. 62 (1) 64-81 (March 1969)

EI 1969 p.1644 no. 25672

1969

LOSS, F.J. and PELLINI, W.S.

Coupling of fracture mechanics and transition temperatures approaches to fracture-safe design. 33p.

NRL-6913 AD-686022 (14 April 1969)

Practical fracture mechanics for structural steel, ed.

M.O. Dobson. London, Chapman and Hall (1969) pp.J1-35

Symposium on fracture toughness concepts for weldable structural steel, Risley, England (April 1969)

STAR 7 (18) p.3391 N69-32672 (1969) NSA 24: 17283

(1970) MA 3 (6) 31-0903 (1970)

LOSS, F.J. and PELLINI, W.S.

Dynamic tear test definition of the temperature transition from linear elastic to gross strain fracture conditions

J. Basic Eng. 91 (1) 108-115 (March 1969)

MA 2 (8) 22-0640 (1969) EI 1969 p.1786-7 no. 04770

LOSS, Frank J.

Heavy section steel toughness characterization. Progress report, period ending 31 August 1969. 21p.

NRL-MR-2041 AD-697920 (15 September 1969)

STAR 8 (8) p.1455 N70-20299 (1970)

McELROY, W.N.; DAHL, R.E. Jr. (Battelle-Northwest) and SERPAN, C.Z. Jr. (NRL)

Damage functions and data correlation

Trans. Amer. Nucl. Soc. 12: 138-9 (June 1969)

15th annual ANS meeting, Seattle (June 1969)

Nucl. Appl. Technol. 7: 561-71 (December 1969)

NSA 23: 36149 (1969) no abstract and 24: 2974 (1970)

EI 1970 p.2233 no. 19129

1969

NASH, G.E. and LANGE, E.A.

Mechanical aspects of the dynamic tear test

J. Basic Eng. (Trans. ASME) 91 (3) 535-43 (September 1969)

MA 3 (2) 22-0069 (1970)

PELLINI, W.S.

Evolution of engineering principles for fracture-safe
design of steel structures. 111p.

NRL-6957 AD-697631 (23 September 1969)

STAR 8 (9) p.1744 N70-22414 (1970)

PELLINI, W.S. and LOSS, F.J.

Integration of metallurgical and fracture mechanics concepts
of transition temperature factors relating to fracture-safe
design for structural steels. 70p. and 38p.

NRL-6900 AD-688417 (24 February 1969)

Welding Research Council - Bul. Ser. 141 (June 1969)

NSA 23: 33951 (1969) EI 1970 p.3382 no. 19008

STAR 7 (20) p.3812 N69-34874 (1969)

POTAPOVS, Uldis and HAWTHORNE, Russell

The effect of residual elements on the response of selected
pressure vessel steels and weldments to irradiation at 550°F

Nucl. Appl. 6 (1) 27-46 (January 1969)

NSA 23: 8253 (1969) MA 2 (5) 16-0122 (1969)

EI 1969 p.1767 no. 07896

1969

PREDMORE, R.E. (Goddard Space Flight Center) and KLIER, E.P.
(Metallurgical Consultant, Syracuse, N.Y.)

Martensite start temperatures versus pressure for 43 xx steels
ASM Trans. 62 (3) 768-73 (September 1969)
EI 1970 p.1678 no. 35996

PUZAK, P.P. and LANGE, E.A.

Fracture toughness characteristics of the new weldable
steels of 180 to 210 ksi yield strengths. 31p.

NRL-6951 AD-694939 (18 September 1969)
STAR 8 (5) p.885 N70-16422 (1970)

PUZAK, P.P. and LANGE, E.A.

Ratio analysis diagram interpretations of the fracture
toughness characteristics of marginal steel welds in the
range from 150 to 200 ksi yield strength. Final report. 12p.

NRL-6878 AD-686376 (26 March 1969)
STAR 7 (17) p.3178 N69-31305 (1969)

PUZAK, P.P. and LANGE, E.A.

Standard method for the 1-inch diameter tear test. 22p.

NRL-6851 AD-692382 (February 1969)
STAR 8 (1) p.109 N70-10372 (1970)

1969

SERPAN, C.Z. Jr. (NRL) and McELROY, W.N. (Battelle-Northwest)
Damage-function analysis of neutron-energy and spectrum
effects upon the radiation embrittlement of steels. 20p.
NRL-6925 AD-6°2072 (25 July 1969)
NSA 24: 2969 (1970) STAR 8 (1) p.137 N70-10469 (1970)

SERPAN, C.Z. Jr. (NRL) and McELROY, W.N. (Battelle-Northwest)
Damage-function analysis of neutron-energy and spectrum
effects upon the radiation embrittlement of steels
STI/PUB-230 vol. 2 pp.31-51 (1969)
Symposium on radiation damage in solids and reactor materials,
Vienna (June 1969)
NSA 24: 14844 (1970)

SERPAN, C.Z. Jr. (NRL) and McELROY, W.N. (Battelle-Northwest)
Damage-function analysis of neutron-energy and spectrum
effects on radiation embrittlement of steels
CONF-690910 pp.491-505 NASA-TM-X-67172 pp.491-505 (1969)
National symposium on development in irradiation testing technology,
NASA Lewis Research Center, Sandusky, Ohio (9-11 September 1969)
NSA 24: 17328 (1970) STAR 9 (13) p.2128 N71-24534
(1971)

SERPAN, C.Z. Jr. (NRL) and McELROY, W.N. (Battelle-Northwest)
Damage model analysis of neutron embrittlement in steels
NRL progress report (March 1969) p.1-6
EI 1969 p.2873 no. 41028

1969

SERPAN, Charles Z. Jr. and WATSON, Henry E.

Dose-rate effect on yield strength of neutron-irradiated
steel

Trans. Amer. Nucl. Soc. 12: 576 (November 1969)

17th conference on remote systems technology, San Francisco
(November 1969)

NSA 24: 6238 (1970) no abstract

SERPAN, C.Z. Jr. and WATSON, H.E.

Irradiation effects in pressure vessel materials for
steam-cooled fast reactors

ASTM special technical publication 457 (1969)

Irradiation effects in structural alloys for thermal and fast
reactors, symposium at 71st annual meeting, San Francisco
(23-28 June 1968)

EI 1970 p.2233-4 no. 25087

SERPAN, C.Z. and WATSON, H.E.

Notch ductility, tensile and neutron spectrum analysis of
PM-2A reactor pressure vessel

ASTM special technical publication 457: 135-55 (1969)

Symposium on irradiation effects in structural alloys for thermal
and fast reactors, San Francisco (June 1968)

NSA 24: 29989 (1970)

SMIDT, F.A. Jr. (Battelle-Northwest)

Dislocation-substructure interactions in irradiated iron and
steel. 73p.

BNWL-1045 (June 1969)

NSA 23: 39006 (1969) STAR 8 (2) p.299 N70-12480
(1970)

1969

SMIDT, F.A. Jr. and MASTEL, B. (Battelle-Northwest)

Some observations of dislocation channelling in irradiated iron

Phil. Mag. 20 (165) 651-56 (September 1969)

NSA 23: 51085 (1969) MA 3 (1) 16-0030 (1970)

SMITH, H.H.; SHAHINIAN, P. and ACHTER, M.R.

Fatigue crack growth rates in type 316 stainless steel at elevated temperature as a function of oxygen pressure

Trans. Met. Soc. AIME 245 (5) 947-53 (May 1969)

MA 2 (9) 31-1704 (1969) EI 1970 p.3342-4 no. 05970

SMITH, H.H. and SHAHINIAN, P.

Influence of an oxygen atmosphere on surface slip in fatigue of Inconel X-750 at 500°C

ASM Trans. Quart. 62 (2) 549-51 (June 1969)

MA 2 (11) 31-2162 (1969)

SRAWLEY, J.E. (Lewis Research Center, Cleveland)

Linear elastic fracture mechanics; a review of principles and methods

Practical fracture mechanics for structural steel, ed. M.O. Dobson.

London, Chapman and Hall (1969) pp. Al-13

Symposium on fracture toughness concepts for weldable structural steel, Risley, England (April 1969)

NSA 24: 17279 (1970) MA 3 (6) 31-0896 (1970)

1969

SRAWLEY, J.E. (Lewis Research Center, Cleveland)

Plane-strain fracture-toughness tests on two-inch-thick
marging steel plate at various strength levels

NASA-TM-X-52470 (1968)

Fracture 1969, proceedings 2nd international conference, Brighton,
England (April 1969) ed. P.L. Pratt and others. London, Chapman and
Hall (1969) pp.119-130, 908

STAR 6 (18) p.3177 N68-29972 (1968) MA 3 (2) 31-0233
(1970)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; POTAPOVS, Uldis
and WATSON, H.E.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 November 1968-31 January 1969. 31p.
NRL-MR-1962 AD-685591 (15 February 1969)

NSA 23: 34022 (1969) STAR 7 (16) p.3008 N69-30272
(1969)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; WATSON, H.E. and
GRAY, R.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 February-30 April 1969. 47p.
NRL-MR-2004 AD-690863 (15 May 1969)
STAR 7 (23) p.4435 N69-39656 (1969)

1969

STEELE, L.E.; SERPAN, C.Z. Jr.; GRAY, R.A. Jr.; WATSON, H.E. and
SMIDT, F.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 May-31 July 1969. 48p.

NRL-MR-2027 AD-695371 (August 1969)

STAR 8 (4) p.729 N70-15073 (1970)

STEELE, L.E.; HAWTHORNE, J.R.; WATSON, H.E.; SERPAN, C.Z. Jr. and
GRAY, R.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 August-31 October 1969. 27p.

NRL-MR-2058 AD-698275 (15 November 1969)

NSA 24: 21395 (1970)

STEELE, L.E.

Neutron irradiation embrittlement of reactor pressure-vessel
steels

At. Energy Rev. 7 (2) 3-133 (1969)

NSA 23: 41683 (1969) EI 1970 p.2215 no. 21086

STERNE, R.H. Jr. (Lukens Steel Co., Coatesville, Pa.) and

STEELE, L.E. (NRL)

Steels for commercial nuclear power reactor pressure vessels

Nucl. Eng. Design 10: 259-307 (July 1969)

NSA 24: 10127 (1970) EI 1970 p.2237 no. 28679

1968

ACHTER, M.R.

The adsorption model for environmental effects in fatigue
crack propagation

Scripta Met. 2 (9) 525-7 (September 1968)

MA 2 (1) 31-0096 (1969)

BEACHEM, C.D. and MEYN, D.A.

Fracture by microscopic deformation processes

ASTM special technical publication 436: 59-88 (1968)

Electron fractography, symposium at 70th annual ASTM meeting,
Boston (25-30 June 1967)

MA 2 (3) 31-0391 (1969)

BROWN, B.F.

The application of fracture mechanics to stress-corrosion
cracking

Metallurgical Rev. 13 (129) 171-83 (December 1968)

MA 2 (2) 31-0230 (1969) EI 1969 p.1599 no. 14721

CROOKER, T.W. and LANGE, E.A.

Fatigue crack growth in three 180 ksi yield strength
steels in air and in salt-water environments. Interim
report. 18p.

NRL-6761 AD-678726 (26 September 1968)

STAR 7 (6) p.1007 N69-16260 (1969)

1968

CROOKER, T.W.; COOLEY, L.A.; LANGE, E.A. and FREED, C.N.
Fatigue crack propagation and plane strain fracture
toughness characteristics of 9Ni-4Co-0.25C steel
ASM Trans. Quart. 61 (3) 568-74 (September 1968)
MA 2 (1) 31-0159 (1969) EI 1969 p.2870 no. 07893

CROOKER, T.W. and LANGE, E.A.
Fatigue crack propagation in a high-strength steel
under constant cyclic load with variable mean loads.
Final report. 22p.
NRL-6805 AD-681026 (November 1968)
STAR 7 (9) p.1534 N69-20403 (1969)

GRAY, Robert A. Jr. and HAWTHORNE, J. Russell
Radiation embrittlement of 12Ni-5Cr-3Mo maraging steel and
companion weld metal at < 250°F and at elevated temperatures
Trans. Amer. Nucl. Soc. 11: 147-8 (June 1968)
14th annual ANS meeting, Toronto (June 1968)
NSA 22: 31435 (1968) no abstract

GROSS, Bernard; ROBERTS, Ernest Jr. and SRAWLEY, John E.
(Lewis Research Centre, NASA, Cleveland)
Elastic displacements for various edge-cracked plate
specimens
Internat. J. Fracture Mechanics 4 (3) 267-76 (September 1968)
MA 2 (4) 31-0584 (1969) EI 1969 p.2177 no. 22315

1968

HAWTHORNE, J.R. and LOSS, F.J.

Effects of coupling nuclear radiation with static service
stresses on pressure vessel material behaviour

Nucl. Eng. Design 8 (1) 108-16 (1968)

NSA 23: 1012 (1969) EI 1969 p.1788 no. 47356

HAWTHORNE, J.R. and WATSON, H.E.

Hot cell equipment developed for remote tension test
specimen evaluations at NRL. 22p.

NRL-6725 AD-682196 (24 June 1968)

NSA 23: 13906 (1969) STAR 7 (11) p.1906 N69-22540
(1969)

HAWTHORNE, J.R.; POTAPOVS, U. and SFRPAN, C.Z. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 November 1967-31 January 1968.
56p.

NRL-Memo-1853 AD-667464 (15 February 1968)

STAR 6 (13) p.2108 N68-23881 (1968)

IRWIN, G.R. (Lehigh Univ., Bethlehem, Pa)

Linear fracture mechanics, fracture transition and
fracture control

Eng. Fracture Mechanics 1 (2) 241-57 (August 1968)

EI 1969 p.1644 no. 28953)

1968

IRWIN, G.R.; LIEBOWITZ, H. and PARIS, P.C.

A mystery of fracture mechanics

Eng. Fracture Mechanics 1 (1) 235-6 (June 1968)

MA 2 (1) 31-0009 (1969)

JOHNSON, Herbert H. (Cornell Univ., Ithaca, N.Y.) and
PARIS, Paul C. (NRL)

Subcritical flow growth

Eng. Fracture Mech. 1.1-45 (June 1968)

NSA 22: 52170 (1968) MA 2 (1) 31-0001 (1969)

LOSS, F.J.

Heavy steel toughness characterization. Semiannual
memorandum progress report. 24p.

NRL-NR-1918 AD-677601 (August 1968)

STAR 7 (4) p.675 N69-14388 (1969)

PELLINI, W.S.

Advances in fracture toughness characterization procedures
and in quantitative interpretations to fracture-safe design
for structural steels. 68p. and 46p.

NRL-6713 AD-669690 (3 April 1968)

Welding Research Council - Bul. Ser. 130 (May 1968)

STAR 6 (18) p.3178 N68-30114 (1968) EI 1968 p.3044

1968

PELLINI, W.S.

Effect of strain rate on fracture strength on conventional structural steels

EUR-4101 pp.217-20 (October 1968)

Meeting of experts on shock structure interactions in reactor vessels, Ispra, Italy (27-30 June 1966)

NSA 23: 27047 (1969)

POTAPOVS, Uldis (NRL); KNIGHTON, George W. and DENTON, Arthur S. (Nuclear Power Field Office, Fort Belvoir, Va)

Critique of in-place annealing of SM-1A nuclear reactor vessel

ASME-paper 67 WA/ER-3 for meeting (12-17 November 1967)

Nucl. Eng. Design 8: 39-57 (1968)

EI 1968 p.1902 NSA 22: 53402 (1968)

EI 1969 p.1788 no. 47351

POTAPOVS, Uldis and HAWTHORNE, J. Russell

The effect of residual elements on 550°F irradiation response of selected pressure vessel steels and weldments. 32p.

NRL-6803 (9 September 1968)

NSA 23: 12375 (1969) STAR 7 (13) n.2339 N69-25877
(1969)

POTAPOVS, Uldis; HAWTHORNE, J. Russell and SERPAN, Charles Z. Jr.

Notch ductility properties of SM-1A reactor pressure vessel following the in-place annealing operation. Final report. 31p.

NRL-6721 AD-671807 (21 May 1968)

Nucl. Appl. 5: 539-409 (December 1968)

NSA 22: 43620 (1968) and 23: 5086 and 5083 (1969)

MA 2 (3) 16-0101 (1969)

1968

ROSS, F.J. and PELLINI, W.S.

Dynamic tear test definition of the temperature transition
from linear elastic to gross strain fracture conditions. 21p.

NRL-6787 AD-680600 (November 1968)

STAR 7 (12) p.2130 N69-24738 (1969)

SERPAN, Charles Z. Jr.

Neutron radiation embrittlement of LaCrosse reactor pressure
vessel steel and weldment: properties and directionality
considerations

Nucl. Eng. Design 8: 95-107 (1968)

NSA 22: 53345 (1968) EI 1969 p.1789 no. 48564

SERPAN, Charles Z. Jr.

Notch ductility and tensile property evaluation of the PM-2A
reactor pressure vessel. 20p.

NRL-6739 (22 April 1968)

NSA 22: 42196 (1968) STAR 6 (23) p.4104 N68-37339
(1968)

SERPAN, Charles Z. Jr.

Notch ductility and tensile property evaluation of the PM-2A
reactor pressure vessel. Interim report. 23p.

NRL-6739 AD-672890 (19 June 1968)

NSA 23: 17263 (1969)

1968

SIMS, C.T. (Materials & Process Lab., General Electric, Schenectady) and DANEK, G.J. (Naval Ship Research and Development Centre, Annapolis)

Metallurgy of heat-resistant alloys

J. Metals 20 (6) 11-13 (June 1968)

Summary of one-day symposium held by High-Temperature Alloys

Committee of AIME's Institute of Metals Div. in New York
(February 1968)

EI 1968 p.1749

SMIDT, F.A. Jr. and BEMENT, A.L. (Battelle-Northwest)

Thermally activated dislocation motion and its application
to the study of radiation damage

Dislocation dynamics, Battelle Inst. materials science colloquia,
Seattle (1-6 May 1967) A.R. Rosenfield, G.T. Hahn, A.L. Bement Jr.
and R.I. Jaffee. New York, McGraw-Hill (1968) pp.409-29

MA 2 (1) 16-0011 (1969)

SPITZIG, W.A.; PELLISSIER, G.E. (U.S. Steel Corp. Monroeville);
BEACHEM, C.D. (NRL); BROTHERS, A.J. (Materials & Process Lab.,
Schenectady); HILL, M. (Republic Steele Corp., Cleveland) and
WARKE, W.R. (Illinois Inst. Tech.)

A fractographic analysis of the relationships between fracture
toughness and surface topography in ultrahigh-strength steels
ASTM special technical publication 436: 17-31 (1968)

Electron fractography, symposium at 70th annual ASTM meeting,
Boston (25-30 June 1967)

MA 2 (3) 11-0115 (1969)

1968

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr. and POTAPOVS, Uldis
Irradiation effects on reactor structural materials.

Quarterly progress report, 1 February-30 April 1968. 41p.

NRL-MR-1872 AD-671094 (15 May 1968)

NSA 23: 3088 (1969)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; POTAPOVS, Uldis
and GILY, R.A. Jr.

Irradiation effect on reactor structural materials.

Quarterly progress reports, 1 May-31 July 1968. 37p.

1 August-31 October 1968. 48p.

NRL-MR-1908 AD-676315 (15 August 1968)

NRL-MR-1937 AD-681020 (15 November 1968)

STAR 7 (3) p.514 N69-13559 (1969) NSA 23: 27122 (1969)

STAR 7 (9) p.1558 N69-20402 (1969)

STEELE, L.E. (USAEC. Div. of Reactor Development & Tech.);
KNIGHTON, G.W. (Nuclear Power Field Office, Fort Belvoir) and
POTAPOVS, U. (NRL)

Radiation embrittlement of pressure vessel and procedures
for limiting this effect in power reactors

Nucl. Appl. 4 (6) 230-44 (April 1968)

NSA 22: 19588 (1968) EI 1968 p.1903

1968

STEELE, L.E. and POTAPOVS, U.

Radiation embrittlement of reactor vessel steels and
suggestions for its control

Nucl. Eng. Design 8: 58-70 (1968)

NSA 23: 1011 (1969) EI 1969 p.1789 no. 48565

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr. and POTAPOVS, Uldis
Research progress

BWNL-790 pp.9.1-20 (June 1968)

Irradiation effects on reactor structural materials. Quarterly
progress report, February-April 1968

NSA 23: 22592 (1969)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; POTAPOVS, Uldis
and GRAY, R.A. Jr.

Research progress

BWNL-870 pp.9.1-19 (September 1968)

Irradiation effects on reactor structural materials. Quarterly
progress report, May-July 1968

NSA 23: 24953 (1969)

STEELE, Lendell E.

USA studies on irradiation effects to advanced pressure
vessel materials. Interim report 1967-1968. 51p.

NRL-MR-1947 AD-684067 (December 1968)

NSA 23: 34021 (1969) STAR 7 (15) p.2805 N69-28958
(1969)

1967

BEMENT, A.L. (Batelle-Northwest) and STEELE, L.E. (USAEC
Division of Reactor Devel. & Tech.)

Proceedings of AEC Industry meeting on irradiation effects
on reactor structural materials, Germantown, Maryland
(18 July 1967). 91p.

BNWL-609 (December 1967)

NSA 22: 16109 (1968) STAR 6 (12) p.1910 N68-22792
(1968)

BROWN, B.F. and GOODE, R.J.

Evaluating mechanical and corrosion subability of materials.
11p.

ASME paper 67-DE-7 for meeting (15-18 May 1967) not listed in
ASME index 1957-1970

EI 1968 p.1747

COOLEY, L.A. and LANGE, E.A.

Fracture development and materials properties in PWR-Penn
State pressure vessel. 26p.

NRL-Memo-1827 AD-663203 (October 1967)
STAR 6 (6) p.854 N68-15553 (1968)

CROOKER, T.W. and LANGE, E.A.

Corrosion-fatigue crack-propagation in modern high-performance
structural steels

ASM-Trans 60 (2) 198-204 (June 1967)

EI 1967 p.2648

1967

CROCKER, T.W.; COOLEY, L.A. and LANGE, E.A.

Fatigue crack propagation and fracture studies of a pressure vessel steel temper embrittled to simulate irradiation damage. 17p.

NRL-MR-1822 AD-66133 (October 1967)

Welding Research Council - Bul. Ser. 126: 8-11 (November 1967)

NSA 22: 35414 (1968) EI 1968 p.2442

STAR 6 (7) p.1031 N68-16817 (1968)

CROCKER, T.W. and LANGE, E.A.

Low cycle fatigue crack propagation in A201B, A302B and A517F pressure vessel steels

Welding J. 46: 322s-328s (July 1967)

NSA 21: 36855 (1967)

FREED, C.N.

Effect of side grooves and fatigue crack length on plane-strain fracture toughness. 20p.

NRL-6654 AD-663884 (7 December 1967)

STAR 6 (8) p.1253 N68-17777 (1968)

COODE, R.J.

Evaluating alloys for fracture-safe structures

Metal Progress 92 (1) 95-100, 102, 104 (July 1967)

EI 1967 p.2482

1967

GOODE, R.J.; HUBER, R.W.; HOWE, D.G.; JUDY, R.W. Jr.; CROOKER, T.W.
and others

Metallurgical characteristics of high strength structural
materials. Progress report. 162p.

NRL-6607 AD-662189 (September 1967)

STAR 6 (6) p.855 N68-15646 (1968)

HAWTHORNE, J.R. and LOSS, F.J.

Availability of data on irradiated materials as related to
design requirements for water cooled reactor pressure vessels.
Final report. 31p. or 41p.

NRL-6625 AD-663879 (1 August 1967)

ASTM symposium on effects of radiation on structural metals, 1966

NSA 22: 35658 (1968) STAR 6 (8) p.1206 N68-17942
(1968)

HAWTHORNE, J.R. and LOSS, F.J.

The effects of coupling nuclear radiation with static and
cyclic service stresses and of periodic proof testing on
pressure vessel material behaviour. 39p.

NRL-6620 AD-664646 (25 July 1967)

NSA 22: 19585 (1968) STAR 6 (10) p.1605 N68-19973
(1968)

HAWTHORNE, J.R. and LOSS, F.J.

Influence of operating environmental and procedures on
material behaviour: effects of coupling nuclear radiation with
static and cyclic service stresses and of periodic proof test-
ing.

Trans. Amer. Nucl. Soc. 10: 149-50 (June 1967)

13th annual ANS meeting, San Diego, Calif. (11-15 June 1967)

NSA 21: 38750 (1967) no abstract

1967

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; WATSON, H.E. and GRAY, R.A. Jr.

Irradiation effects on reactor structural materials.

Quarterly report no. 1. 1 November 1966-31 January 1967.

45p. and 1 February-30 April 1967. 62p.

NRL-MR-1753 AD-650349 (15 February 1967)

NRL-Memo-1870 AD-656578 (15 May 1967)

NSA 21: 39607 (1967) STAR 5 (15) p.2751 N67-28949

and 5 (22) p.4091 N67-37323 (1967)

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; WATSON, H.E.; LOSS, F.J. and POTAPOVS, U.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 May-31 July 1967. 47p.

NRL-MR-1808 AD-661229 (15 August 1967)

NSA 22: 36508 (1968) STAR 6 (3) p.370 N68-12175
(1968)

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; POTAPOVS, U. and WATSON, H.E.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 August-31 October 1967. 52p.

NRL-MR-1833 AD-663888 (15 November 1967)

NSA 22: 38589 (1968) STAR 6 (8) p.1206 N68-17918
(1968)

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; GRAY, R.A. Jr. WATSON, H.E.;
GATES, O.R. and others

Metallurgical failure analysis of PM-3A reactor control
lifting knob. 28p.

NRL-Memo-1788 AD-656579 (14 June 1967)

STAR 6 (20) p.3532-3 N68-33276 (1968)

1967

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; WATSON, H.E. and GRAY, R.A. Jr.

Research progress

BNWL-455 paper 9.1-34 (15 May 1967)

Irradiation effects on reactor structural materials. Quarterly progress report, February-April 1967

NSA 22: 19577 (1968)

HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; LOSS, F.J.; POTAPOVS, U. and KLIER, E.P.

Research progress

BNWL-532 pp.9.1-23 (15 August 1967)

Irradiation effects on reactor structural materials. Quarterly progress report, May-June 1967

NSA 22: 31417 (1968)

HUBER, R.W.; GOODE, R.J. and JUDY, R.W. Jr.

Fracture toughness and stress-corrosion cracking of some titanium alloy weldments

Welding J. 46: 439s-47s (October 1967)

NSA 22: 2619 (1968)

IRWIN, G.R.; KRAFFT, J.M. (NRL) PARIS, P.C. (Lehigh Univ.) and WELLS, A.A. (Queens Univ., Belfast)

Basic aspects of crack growth and fracture. 82p.

NRL-6598 AD-663882 (21 November 1967)

NSA 22: 39892 (1968) STAR 6 (8) p.1253 N68-17840
(1968)

1967

KLIER, Eugene P.; HAWTHORNE, J.R. and STEELE, L.E.

Tensile properties of selected steels for use in nuclear reactor pressure vessels. 52p.

NRL-6649 AD-664460 (22 September 1967)

NSA 22: 17147 (1968) STAR 6 (9) p.1351 N68-18415
(1968)

LAIDLER, J.J. and SMIDT, F.A. (Battelle Memorial Institute, Richland, Wash.)

Correlation between mechanical properties and microstructure in irradiation iron and molybdenum

Met. Soc. Conf. 37: 809-19 (1967)

Symposium on radiation effects, Asheville, N.C. (September 1965)

NSA 22: 21747 (1968) EI 1968 p.1750

LANGE, E.A.

Failure-safe casting design

Boundary 95 (1) 69-75 (January 1967)

EI 1967 p.2664

NASH, G.E. and LANGE, E.A.

Mechanical aspects of the dynamic tear test specimen. 58p.

NRL-1826 AD-663272 (September 1967)

STAR 6 (7) p.1090 N68-16504 (1968)

SERPAN, C.Z. Jr. and STEELE, L.E.

Comparison of neutron flux values obtained by simultaneous irradiation of fission and threshold monitors

PB-174485 Report of NRL progress (April 1967) pp.1-4

STAR 6 (4) p.537 N68-12919 and p.598 N68-12918 (1968)

1967

SERPAN, C.Z. Jr. and STEELE, L.E.

Damaging neutron exposure criteria for evaluating the embrittlement of reactor pressure vessel steels in different neutron spectra. 28p.

NRL-6415 AD-639748 CONF-660607-3 (28 July 1966)

ASTM special technical publication 426 (1967)

3rd international symposium on the effects of irradiation on structural metals, Atlantic City (June 1966)

NSA 20: 46228 (1966) STAR 5 (5) p.737 N67-14999
(1967)

SERPAN, Charles Z. Jr.; STEELE, L.E. and HAWTHORNE, J.R.

Features and results of several programs of radiation-damage surveillance of power reactor pressure vessels

J. Basic Eng. 89: 221-32 (March 1967)

NSA 21: 21671 (1967)

SERPAN, Charles Z. Jr. and WATSON, Henry E.

Pressure vessel surveillance program for the army MH-1A floating nuclear power reactor. 35p.

NRL-6604 AD-663550 (22 September 1967)

NSA 22: 35561 (1968)

SERPAN, Charles Z. Jr. and HAWTHORNE, J. Russell

Through-thickness notch ductility and tension properties as a function of neutron exposure to a simulated pressure vessel wall of A302-B steel. 13p.

NRL-6575 AD-658019 (31 March 1967)

Nucl. Eng. Design 6 (1) 78-88 (August 1967)

NSA 21: 41627 (1967) and 22: 8794 (1968)

EI 1968 p.1904 STAR 5 (24) p.4463 N67-39485 (1967)

1967

SERPAN, Charles Z. Jr. and HAWTHORNE, J. Russell

Yankee reactor pressure vessel surveillance: notch ductility performance of vessel steel and maximum service fluence determined from exposure during cores II, III and IV. 38p.
ASME paper 67-WA/ER-1 for meeting (12-17 November 1967) 14p.
NRL-6616 AD-661803 (29 September 1967)
J. Basic Eng. 89: 897-910 (December 1967)
EI 1968 p.1904 NSA 24: 35413 and 10016 (1968)

SMITH, H.H.; SHAHINIAN, P. and ACHTER, M.R.

High-temperature vacuum fatigue testing of type 316 stainless steel and Inconel X with a resonance-type machine. 14p.
NRL-6489 AD-650934 (27 March 1967)
NSA 21: 26801 (1968) STAR 5 (16) p.2979 N67-29490
(1967)

STEELE, L.E. (USAEC); KNIGHTON, C.W. (Nuclear Power Field Office, Fort Belvoir, Va) and POTAPOVS, U. (NRL)

Influence of operating environment and procedures on material behaviour: radiation effects and operation to minimize the influence of these effects
Trans. Amer. Nucl. Soc. 10: 151-2 (June 1967)
13th annual ANS meeting, San Diego, Calif. (11-15 June 1967)
NSA 21: 38746 (1967)

1966

ACHTER, M.R.; SMITH, H.H.; STEGMAN, R.L. and RILEY, R.J.

A flexural fatigue machine for high-temperature operation at resonance in vacuum. 21p.

NRL-6275 AD-617915 (11 June 1965)

Rev. Sci. Instr. 37 (3) 311-15 (March 1966)

STAR 3 (20) p.3431 N65-31991 (1965) EI 1966 p.1620

ACHTER, M.R.; SMITH, H.H. and SHAHINIAN, P.

Starter cracks for fatigue toughness testing by a resonance fatigue technique. 9p.

NRL-MR-1680 AD-630871 (March 1966)

STAR 4 (15) p.2850 N66-27900 (1966)

BRIMMALL, J.L.; KISSINGER, H.E.; MASTEL, B. and SMIDT, F.A.

(Battelle-Northwest)

Radiation effects on metals

BWNL-207 pp.3.7-13 (17 January 1966)

Metallurgy research. Quarterly progress report, October-December 1966

NSA 20: 27569 (1966)

BROWN, B.F.

New stress-corrosion cracking test for high-strength alloys

Mater. Res. Stand. 6 (3) 129-33 (March 1966)

EI 1966 p.1655

BROWN, William F. Jr. and SRAWLEY, John E. (NASA Lewis Research Center, Cleveland)

Current status of plane crack toughness testing. 138p.

NASA-TM-X-52209 (1966)

ASTM (conference) Atlantic City (29 June 1966)

STAR 4 (15) p.2960 N66-28019 (1966)

1966

DOERING, H. and SHAHINIAN, P.

Effect of electron bombardment heating on the tensile properties of tungsten

Mater. Res. Stand. 6: 134-8 (March 1966)

NSA 20: 17073 (1966)

FREED, C.N. and GOODE, R.J.

Effect of side grooving on measurements of plane-strain fracture toughness

J. Metals 1 (4) 770-90 (December 1966)

EI 1967 p.1540

GOODE, R.J.; HUBER, R.W.; JUDY, R.W. Jr.; HOWE, D.G.; PUZAK, P.P.; LLOYD, K.B.; CROOKER, T.W.; MOREY, R.E.; LANCE, E.A. and FREED, C.N.

Metallurgical characteristics of high strength structural materials. Quarterly report no. 10, December 1965-March 1966.
104p.

NRL-6454 AD-641262 (April 1966)

NSA 21: 6795 (1967) STAR 5 (7) p.1103 N67-17711
(1967)

HAWTHORNE, J.R. and STEELE, L.E.

Initial evaluations of metallurgical variables as possible factors controlling the radiation sensitivity of structural steels. 33p.

NRL-6420 AD-642290 CONF-660607-5 (29 September 1966)

3rd international symposium on the effects of irradiation on structural metals, Atlantic City (July 1966)

NSA 21: 6838 (1967) STAR 5 (9) p.1461 N67-19755
(1967)

1966

HAWTHORNE, J.R.; GRAY, R.A. Jr. and STEELE, L.E.

Microstructure: a factor in radiation embrittlement
sensitivity of structural steels

Trans. Amer. Nucl. Soc. 9: 392 (October-November 1966)

NSA 21: 6844 (1967) no abstract

KRAFFT, J.M.

Rate "spectrum" of strain hardenability and of fracture
toughness

Report of NRL progress pp.6-16 (January 1966)

EI 1966 p.2927 STAR 4 (15) p.2843 N66-27010 (1966)

NAVAL RESEARCH LABORATORY, Washington, D.C.

Report of NRL progress. 31p.

PB-173549 (November 1966)

NSA 21: 18268 (1968)

PUZAK, P.P.; LLOYD, K.B.; HUBER, R.W.; GOODE, R.J.; LANGE, E.A.;
FREED, C.N.; CROCKER, T.W.; JUDY, R.W. Jr. and HOWE, D.G.

Metallurgical characteristics of high strength structural
materials. Quarterly report no. 11, April-June 1966. 91p.

NRL-6513 AD-646520 (August 1966)

NSA 21: 13151 (1967) STAR 5 (12) p.2121 N67-24914
(1967)

1966

SERPAN, C.Z. Jr. and STEELE, L.E.

Neutron spectral considerations affecting projected estimates
of radiation embrittlement of the army SM-1A reactor pressure
vessel. 24p.

NRL-6474 AD-641283 (12 August 1966)

NSA 21: 1915 (1967) STAR 5 (6) p.914 N67-16479 (1967)

SERPAN, C.Z. Jr.; STEELE, L.E. and HAWTHORNE, J.R.

Radiation damage surveillance of power reactor pressure vessels.
20p.

NRL-6349 AD-629881 (31 January 1966)

NSA 20: 17126 (1966) STAR 4 (14) p.2639 N66-25845
(1966)

SMIDT, F.A. and BENNETT, W.S. (Battelle-Northwest)

Damage mechanisms

BNWL-207 pp.3.14-16 (17 January 1966)

Metallurgy research. Quarterly progress report, October-December
1965

NSA 20: 27476 (1966)

STEELE, L.E.; HAWTHORNE, J.R. and SERPAN, C.Z. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 November 1965-31 January 1966. 43p.
and 1 February-30 April 1966. 62p.

NRL-Memo-1676 AD-630937 (15 February 1966)

NRL-Memo-1700 AD-635844 (15 May 1966)

STAR 4 (15) p.2877 N66-27417 and 4 (22) N66-37234 (1966)

NSA 21: 4978 (1967)

1966

STEELE, L.E.; HAWTHORNE, J.R.; GRAY, R.A. Jr.; KLIER, E.P.; SERPAN, C.Z. Jr. and others

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 May-31 July 1966. 30p.

NRL-Memo-1719 AD-639835 (15 August 1966)

STAR 5 () p.735 N67-14727 (1967)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr. and GRAY, R.A.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 August-31 October 1966. 30p.

NRL-MR-1731 AD-646662 (15 November 1966)

NSA 22: 4811 (1968) STAR 5 (12) p.2151 N67-24894
(1967)

STEELE, L.E.

Key factors affecting neutron embrittlement of reactor
pressure-vessel steels

EUR-3121 pp.181-226 (September 1966)

Colloquium brittle fracture and safety problems on nuclear
pressure vessels, Brussels (11-13 January 1966) ed. J. Sebille
MA 2 (2) 16-0037 (1969)

STEELE, L.E.; HAWTHORNE, J.R. and GRAY, R.A. Jr.

Neutron irradiation embrittlement of several higher
strength steels. 20p.

NRL-6419 CONF-660607-4 (7 September 1966)

3rd international symposium on the effects of irradiation on
structural metals, Atlantic City (June 1966)

NSA 21: 505 (1967)

1966

STEELE, L.E.

Radiation embrittlement of reactor pressure vessel steels
Nucl. Eng. Design 3 (2) 287-98 (1966)
NSA 20: 27610 (1966) EI 1966 p.1869

STOOP, J. and SHAHINIAN, P.

Effect of nitrogen on tensile and creep-rupture properties
of niobium
Amer. Soc. Metals, Trans. Quart. 59: 411-26 (September 1966)
NSA 20: 37218 (1966)

WATSON, H.E. and STEELE, L.E.

The NRL high level radiation laboratory. I. Structural
design and construction features
Nucl. Eng. Design 3 (2) 299-307 (February-March 1966)
NSA 20: 27081 (1966) EI 1966 p.2551

WATSON, H.E.

The NRL high level radiation laboratory. II. Laboratory
functions and equipment. III. Operating experience
Nucl. Eng. Design 3 (3) 439-40 (April 1966) and (4) 97-107
(May-June 1966)
NSA 20: 27084 and 31337 (1966)

1965

BEACHEM, C.D.

Electron fractographic studies of mechanical failure
processes in metals

ASME-paper 64-Met-12 for meeting (4-8 May 1964)
J. Basic Eng. (ASME Trans.) 87 (2) 299-306 (June 1965)
EI 1964 p.1145 and 1965 p.1341

BEACHEM, C.D.

Electron microscope fracture examination to characterize
and identify modes of fracture. 124p.

NRL-6293 AFML-TR-64-408 AD-623567 (19 April 1965)
NSA 20: 9485 (1966) STAR 4 (6) p.900 N66-15216 (1966)

BRIMHALL, J.L.; KISSINGER, H.E.; MASTEL, B. and SMIDT, F.A.
(Battelle-Northwest)

Radiation effects

BNWL-166 pp.3.10-14 (15 October 1965)
Metallurgy research section. Quarterly progress report,
July-September 1965
NSA 20: 9565 (1966)

BROWN, B.F. and BEACHEM, C.D.

Study of stress factor in corrosion cracking by use of
precracked cantilever beam specimen
Corrosion Sci. 5 (11) 745-50 (November 1965)
EI 1966 p.2944

1965

CHAPIN, E.J.

The design, construction and equipment of a new high-level radiation laboratory at NRL. 121p.

NRL-6205 AD-615369 (14 April 1965)
NSA 19: 26492 (1965) EI 1966 p.2551
STAR 3 (16) p.2708 N65-27166 (1965)

CROCKER, T.W. (NRL) and HARRISON, H.L. (Univ. of Wisconsin, Madison)

Effects of flame cambering on bending strength of I-beams
Welding J. 44 (12) 545a-8s (December 1965)
EI 1966 p.242

CROCKER, T.W.; MOREY, R.E. and LANGE, E.A.

Low cycle fatigue crack propagation characteristics of Monel 400 and Monel K-500 alloys. 14p.
NRL-6218 AD-613558 (10 March 1965)
STAR 3 (19) p.3296 N65-30446 (1965)

EFTIS, J. (George Washington Univ., Washington, D.C.) and KRAFFT, J.M. (NRL)

Comparison of initiation with rapid propagation of crack in mild steel plate
ASME-paper 64-Met-16 for meeting (4-8 May 1964)
J. Basic Eng. (ASME Trans.) 87 (1) 257-63 (March 1965)
EI 1964 p.1534 and 1965 p.1817

1965

GOODE, R.J.; HOWE, D.G.; HUBER, R.W.; PUZAK, P.P.; LLOYD, K.B. and others

Metallurgical characteristics of high strength structural materials. Seventh quarterly report. 80p.

NRL-6327 AD-621567 (May 1965)

STAR 4 (4) p.598 N66-13723 (1966)

GOODE, R.J.; HUBER, R.W.; HOWE, D.G.; JUDY, R.W. Jr.; PUZAK, P.P.; LLOYD, K.B.; CROOKER, T.W.; MOREY, R.E.; LANCE, E.A. and FREED, C.N.

Metallurgical characteristics of high-strength structural materials. Ninth quarterly report. 100p.

NRL-6405 AD-6340% (November 1965)

NSA 20: 33858 (1966) STAR 4 (20) p.4022 N66-34945
(1966)

CROSS, Bernard and SRAWLEY, John E.

Stress-intensity factors for single-edge-notch specimens in bending and tension by boundary collocation of a stress function. 71p.

NASA-TN-D-2603 (January 1965)

STAR 3 (5) p.838 N65-14631 (1965)

HAWTHORNE, J.R. and STEELE, L.E.

In-reactor fatigue tests of A302-B steel representing the Elk River Reactor pressure vessel. 17p.

NRL-Memo-1596 (15 February 1965)

NSA 19: 34748 (1965) STAR 4 (10) p.1701 N66-20352
(1966) and 3 (15) p.2590 N65-25903 (1965)

1965

IRWIN, G.R. (NRL) and WELLS, A.A. (Queens Univ., Belfast
formerly Br. Welding Research Assn., Abington)

Continuum-mechanics view of crack propagation

Met. Revs. 10 (38) 223-70 (1965)

EI 1966 p.1701 MA 32 p.1374 (1964-65)

JUDY, R.W. Jr.; CROOKER, T.W.; MOREY, R.E.; LANGE, E.A. and
GOODE, R.J.

Fractographic analysis of Ti-7Al-2Cb-1Ta and Ti-6Al-4V
fractures developed in "wet" fatigue. 17p.

NRL-63330 AD-628277 (26 July 1965)

NSA 20: 16967 (1966)

KLIER, E.P.

Conditions of failure in fatigue cracked 4340 steel. 14p.

NRL-6317 AD-623566 (7 October 1965)

STAR 4 (5) N66-14534 (1966)

KLIER, E.P. and HAWTHORNE, J.R.

The cooling transformations in certain uranium-bearing steels.

17p.

NRL-6240 AD-620136 (28 June 1965)

STAR 4 (2) p.250 N66-11275 (1966)

LANGE, E.A.; CROOKER, T.W. and MOREY, R.E.

Low cycle fatigue crack propagation in rotating-beam specimens

Mater. Res. Stand. 5 (7) 352-8 (July 1965)

EI 1966 p.1614

1965

PELLINI, N.S.; GOODE, R.J.; PUZAK, P.P.; LANGE, E.A. and HUBER, R.W.

Review of concepts and status of procedures for fracture-safe design of complex welded structures involving metals of low to ultra-high strength levels. 89p.

NRL-6300 AD-619574 (June 1965)
STAR 4 (4) p.661 N66-13876 (1966)

PUZAK, P.P.; LLOYD, K.B.; GOODE, R.J.; HUBER, R.W.; HOWE, D.G.; JUDY, R.W. Jr.; CROCKER, T.W.; MOREY, R.E.; LANGE, E.A. and FREED, C.N.

Metallurgical characteristics of high strength structural materials. Eighth quarterly report. 96p.
NRL-6364 AD-625374 (12 October 1965)
NSA 20: 11273 (1966) STAR 4 (10) p.1686 N66-20814 (1966)

SIN, G.C. (Lehigh Univ., Bethlehem, Pa); PARIS, P.C. (NRL, on leave from Lehigh Univ., 1964-65) and IRWIN, G.R. (NRL)

On cracks in rectilinearly anisotropic bodies
Int. J. Fracture Mech. 1 (3) 189-203 (September 1965)
EI 1966 p.2977

SMITH, F.A. and LAIDLER, J.J. (Battelle-Northwest)

Damage mechanisms

BWNL-166 pp.3.15-23 (15 October 1965)

Metallurgy research section. Quarterly progress report,
July-September 1965

NSA 20: 9566 (1966)

1965

SMIDT, F.A. Jr. (Battelle-Northwest)

The effect of temperatures and strain-rate of thermally activated deformation on high-purity alpha iron. 84p.

BNL-184 (December 1965)

NSA 20: 27473 (1966)

SRAWLEY, John E. and BROWN, William P. Jr. (NASA Lewis Research Center, Cleveland)

Fracture toughness testing. 69p.

NASA-TN-D-2599 (January 1965)

STAR 3 (5) p.802 N65-15231 (1965)

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; KLIER, E.P. and WATSON, H.E.

Irradiation effects on reactor structural materials.

Period covered 1 November 1964-31 January 1965. 25p.

NRL-MR-1593 AD-614899 (15 February 1965)

NSA 20: 2408 (1966)

STEELE, L.E.; HAWTHORNE, J.R. and WATSON, H.E.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 February-30 April 1965. 32p.

NRL-Memo-1611 AD-617319 (15 May 1965)

NSA 20: 2409 (1966)

1965

STEELE, L.E.; HAWTHORNE, J.R.; SERPAN, C.Z. Jr.; WATSON, H.E. and KLIER, E.P.

Irradiation effects on reactor structural materials,

1 May-31 July 1965. 49p.

NRL-MR-1638 AD-621867 (15 August 1965)

STAR 4 (3) p.451 N66-12836 (1966)

STEELE, L.E.; SERPAN, C.Z. Jr. and HAWTHORNE, J.R.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 August-31 October 1965. 28p.

NRL-Memo-1663 (15 November 1965)

NSA 20: 43997 (1966)

1964

BROWN, B.F.

Stress-corrosion cracking and corrosion fatigue of high strength steels

DMIC-210 AD-611750 pp.91-102 (1964)

Problems in the load-carrying application of high-strength steels, symposium, Washington (26-28 October 1964)

STAR 3 (9) p.1492 N65-19235 (1965)

1964

CROOKER, T.W.; MOREY, R.E.; LANCE, E.A.; JUDY, R.W.; FREED, C.N.
and others

Metallurgical characteristics of high strength structural
materials. Fifth quarterly report, May-August 1964. 60p.

NRL-6196 AD-608940 (September 1964)

STAR 3 (8) p.1292 N65-18362 (1965)

GOODE, R.J.; HUBER, R.W.; HOWE, D.G.; JUDY, R.W.; CROOKER, T.W.
and others

Metallurgical characteristics of high strength structural
materials. Fourth quarterly report, February-April 1964.
60p.

NRL-6137 AD-602412 (June 1964)

STAR (22) p.3203 N64-30573 (1964)

GROSS, Bernard; SRAWLEY, John E. and BROWN, William F. Jr. (NASA
Lewis Research Center, Cleveland)

Stress-intensity factors for a single-edge-notch tension
specimen by boundary collocation of a stress function. 13p.

NASA-TN-D-2395 (August 1964)

STAR 2 (18) p.2596 N64-26418 (1964)

HAWTHORNE, J.R. and STEELE, L.E.

In-reactor studies of low-cycle fatigue properties of a nuclear
pressure vessel steel. 18p.

NRL-6127 AD-606773 (2 June 1964)

NSA 18: 40003 (1964) STAR 3 (1) p.101 N65-10261 (1965)

1964

IRWIN, G.R.

Crack-toughness testing of strain-rate sensitive materials. IIP.
 ASME-paper 63-WA-217 for meeting (17-22 November 1963)
 J. Eng. Power (ASME Trans. A) 86 (4) 444-50 (October 1964)
 EI 1963 p.1651

JONES, Melvin H. and BROWN, William F. Jr. (NASA Lewis Research Center, Cleveland)

Acoustic detection of crack initiation in sharply notched specimens

NASA-RR-180

Mater. Res. Stand. 4 (3) 120-9 (1964)
 STAR 2 (14) p.1786 N64-21304 (1964)

KLIER, E.P. and JELLISON, J. (Dept. Chemical Engineering, Catholic Univ. of America, Washington, D.C.)

Effect of austenitizing temperatures on cooling transformations in 43xx steels

ASM Trans. 57 (1) 186-98 (March 1964)
 EI 1964 p.948

KLIER, E.P. (Catholic Univ. of America, Washington, D.C.);
 BORAS, G. (Harvard Univ., Washington, D.C.) and LIN, J.M.
 (Univ. of Pennsylvania, Pa)

Some factors that modify slow crack propagation in high strength sheet metal

ASTM Proc. 64: 649-68 (1964)
 EI 1965 p.2243

1964

KOOISTRA, L.F. (Babcock & Wilcox, Barberton, Ohio); LANGE, E.A. (NRL) and PICKETT, A.G. (Southwest Research Inst., San Antonio, Texas)

Full-size pressure vessel testing and its application to design

J. Eng. Power (Trans. ASME A) 86 (4) 419-28 (October 1964)

KRAFFT, J.M.

Correlation of plane strain crack toughness with strain hardening characteristics of low, medium and high strength steel

Appl. Mater. Res. 3 (2) 88-101 (April 1964)

EI 1964 p.2006

LANGE, E.A. and PELLINI, W.S.

Drop weight testing and fracture safe design

Mod. Cast. 46 (6) 750-9 (December 1964)

EI 1965 p.2436

LANGE, E.A. (NRL); PICKETT, A.G.; WYLIE, R.D. (Southwest Research Inst., San Antonio, Texas); BEACHEM, C.D. and DAHLBERG, E.P. (NRL)

Failure analysis of PVRC vessel no. 5. Parts 1 and 2.

(Part 1 is written by the first three authors, part 2 by the last two)

Welding Res. Council - Bul. 98 (August 1964)

EI 1965 p.1878

1964

LANGE, E.A.; CROOKER, T.W. and MOREY, R.E.

An investigation of the rotating-beam test for low-cycle
fatigue crack propagation studies

NRL-6056 AD-435560 (17 March 1964)

STAR 2 (11) p.1379 N64-18869 (1964)

PELLINI, W.S.; GOODE, R.J.; HUBER, R.W. and others

Metallurgical characteristics of high strength structural
materials. Sixth quarterly report. 95p.

NRL-6258 AD-612620 (December 1964)

NSA 19: 20462 (1965) STAR 3 (12) p.2036 N65-22381
(1965)

PELLINI, W.S. and PUZAK, P.P.

Practical considerations in applying laboratory fracture
test criteria to the fracture-safe design of pressure
vessels

J. Eng. Power (Trans. ASME A) 86 (4) 429-43 (October 1964)

PUZAK, P.P.; LLOYD, K.B.; GOODE, R.J.; HUBER, R.W.; HOWE, D.G.
and others

Metallurgical characteristics of high strength structural
materials. Third quarterly progress report. 55p.

NRL-6086 AD-432317 (January 1964)

STAR 2 (14) p.1739 N64-21226 (1964)

1964

SERPAN, C.Z. Jr. and STEELE, L.E.

In-depth embrittlement of a simulated pressure vessel
wall of A302-B steel. 10p.

NRL-6151 AD-606696 (16 July 1964)

NSA 19: 4715 (1965) STAR 2 (23) N64-32670 (1964)

SERPAN, Charles Z. Jr. and STEELE, Lendell E.

Neutron dosimetry sampling of the CMRE pressure vessel
and grid plates. 23p.

NRL-Memo-1523 (2 June 1964)

NSA 19: 5484 (1965)

SERPAN, C.Z. Jr.; WATSON, H.E.; HAWTHORNE, J.R. and STEELE, L.E.

Yankee reactor pressure vessel surveillance: evaluation
of specimens exposed during the second core. 16p.

NRL-6179 AD-609565 (18 September 1964)

NSA 19: 11780 (1965) STAR 3 (9) p.1521 N65-19445
(1965)

SMIDT, F.A. (General Electric Co., Richland, Wash. Hanford
Atomic Products Operation)

Damage mechanisms

HW-84281 pp.4.19-24 (15 September 1964)

Metallurgy research operation. Quarterly progress report,
July-September 1964

NSA 19: 16216 (1965)

1964

STANLEY, John E. and BROWN, William F. Jr. (NASA Lewis Research Center, Cleveland)

Fracture toughness testing. 126p.

NASA-TM-X-52030 (1964)

STAR 2 (18) p.2595 N64-25908 (1964)

STEELE, L.E.; HAWTHORNE, J.R. and SERPAN, C.Z. Jr.

Effects of neutron irradiation on the properties of reactor structural materials. 18p.

NRL-Memo-1502 AD-433152 (20 January 1964)

NSA 18: 40004 (1964) STAR 3 (4) p.638 N65-14294 (1965)

STEELE, L.E.

Neutron embrittlement of reactor pressure vessel steels

AD-609535

Report of NRL progress pp.8-17 (November 1964)

STAR 3 (9) p.1520 N65-19061 (1965)

STEELE, L.E.; HAWTHORNE, J.R. and WATSON, H.E.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 February-30 April 1964. 19p.

NRL-Memo-1534 AD-602159 (15 May 1964)

NSA 19: 4716 (1965) STAR 4 (11) p.1923 N66-22119
(1966)

1964

STEELE, L.E.; HAWTHORNE, J.R. and SERPAN, C.Z. Jr.

Irradiation effects on reactor structural materials.

Quarterly progress report, 1 May-31 July 1964. 40p. and
1 August-31 October 1964. 21p.

NRL-Memo-1556 AD-447973 (15 August 1964)

NRL-MR-1572 AD-609272 (15 November 1964)

NSA 19: 11781 (1965) STAR 3 (2) p.309 N65-12299 and
3 (8) p.1304 N65-17987 (1965)

STEELE, L.E. and HAWTHORNE, J.R.

New information on neutron embrittlement and embrittlement
relief of reactor pressure vessel steels. 34p.

NRL-6160 AD-407494 CONF-512-10 (7 August 1964)

ASTM 67th annual meeting, Chicago (June 1964)

NSA 19: 2659 (1965) STAR 3 (2) p.282 N65-11779 (1965)

STEELE, L.E.

Neutron embrittlement of reactor pressure vessel steels

Report of NRL progress pp.8-17 (November 1964)

EI 1965 p.1524

WATSON, H.E. and STEELE, L.E.

The NRL high-level radiation laboratory

AD-606809 pp.1-10 (September 1964)

Report of NRL progress

NSA 19: 23117 and 22863 (1965) EI 1965 p.1490

STAR 3 (2) p.238 N65-11716 (1965)

1964

WATSON, Henry E. and STEELE, Lendell E.

The U.S. Naval Research Laboratory high-level radiation laboratory

Trans. Amer. Nucl. Soc. 7: 403 (November 1964)

Proceedings 12th conference on remote systems technology,

San Francisco (30 November-3 December 1964) Hinsdale, ANS (1964)

pp.45-53

NSA 19: 2464, abstract given and 6036, no abstract (1965)

EI 1965 p.1283

1963

ACHTER, M.R. (NRL); DANEK, G.J. Jr. (Naval Engineering Experiment Station, Annapolis, Md. formerly NRL) and SMITH, H.H. (NRL)

Effect of fatigue of gaseous environments under varying temperature and pressure

Met. Soc. AIME Trans. 227 (6) 1296-1301 (December 1963)

EI 1964 p.1143 MA 32 p.281 (1964)

ACHTER, M.R.

Mechanical behaviour of metals in vacuum

Inst. Environmental Sciences annual technical meeting, proceedings

pp.385-94 (1963)

EI 1964 p.1150

1963

BEACHEM, C.D.; BROWN, B.F. and EDWARDS, A.J. Jr.

Characterizing fractures by electron fractography. Part 12.

Illustrated glossary. Section 1. Quasi-cleavage.

Interum report. 23p.

NRL-Memo-1432 part 12 AD-416457 (June 1963)

STAR 2 (9) p.1196 N64-17618 (1964)

BEACHEM, C.D.

Electron fractographic study of influence of plastic strain conditions upon ductile rupture processes in metals

ASM Trans. 56 (3) 318-26 (September 1963)

EI 1963 p.1219

HAWTHORNE, J.R. and STEELE, L.E.

Systems and techniques for in-reactor temperature control of NRL irradiation experiments. 18p.

NRL-Memo-1486 AD-430750 (December 1963)

NSA 18: 11487 (1964) STAR 2 (17) p.2367 N64-25088
(1964)

IRWIN, George R.

Fracture by progressive crack extension

ASD-TDR-63-140 AD-40877 pp.293-323 (May 1963)

Symposium on structural dynamics under high impulse loading,
Dayton, Ohio (17-18 September 1962)

STAR 2 (5) p.622 N64-13444 (1964)

IRWIN, G.R.

Theoretical aspects of fracture failure analysis

Metals Eng. Quart. 3 (1) 24-30 (February 1963)

EI 1963 p.1220

1963

KLIER, E.P.

The effect of a fatigue crack on the notch strength and fracture development in cylindrical specimens of heat-treated 4340 steel. 16p.

NRL-5914 AD-414823 (24 June 1963)

STAR 3 (1) p.82 N65-10407 (1965)

KLIER, E.P.

The effect of specimen size on the fatigue crack-strength of cylindrical specimens of heat treated 4340 steel. 17p.

NRL-6012 AD-428226 (16 December 1963)

STAR 2 (13) p.1611 N64-20266 (1964)

KOOISTRA, Lambert P. (Babcock & Wilcox Co., Barberton, Ohio);

LANCE, E.A. (NRL) and PICKETT, Andrew C. (Southwest Research Inst., San Antonio)

Full-size, pressure-vessel testing and its application to design

ASME preprint 63-WA-293 CONF-102-28 (1963)

ASME 1963 winter annual meeting, Philadelphia (November 1963)

NSA 18: 6938 (1964)

KRAFFT, J.M. and SULLIVAN, A.M.

Effects of speed and temperature on crack toughness and yield strength in mild steel

ASM Trans. 56 (1) 160-75 (March 1963)

EI 1963 p.2116

1963

KRAFFT, J.M.

Fracture toughness of metals

Report of NRL progress p.4-16 (November 1963)

EI 1964 p.1145 STAR 2 (9) p.1149 N64-17219 (1964)

LANGE, E.A.; CROOKER, T.W. and KLIER, E.P.

Tensile properties of explosively formed mild steel plate

ASM Trans. 56 (3) 412-26 (September 1963)

EI 1964 p.1172

PELLINI, W.S. and PUZAK, P.P.

Fracture analysis diagram procedures for fracture-safe
engineering design of steel structures. 55p. and 28p.

NRL-5920 (15 March 1963)

Welding Res. Council - Bul. Ser. 88 (May 1963)

EI 1963 p.2114 STAR 1 (11) p.785 N63-14983 (1963)

PELLINI, W.S. and PUZAK, P.P.

New principles for fracture-safe design of steel structures

Report of NRL progress pp.9-28 (March 1963)

EI 1963 p.2114 STAR 1 (11) p.785 N63-14738 (1963)

PELLINI, W.S. and PUZAK, P.P.

Practical considerations in applying laboratory fracture
test criteria to the fracture-safe design of pressure vessels.
34p.

NRL-6030 AD-426431 (5 November 1963)

ASME winter annual meeting, symposium on behaviour of pressure
vessel materials, Philadelphia (17-22 November 1963)

STAR 2 (5) p.642 N64-13840 (1964)

1963

STEELE, L.E. and HAWTHORNE, J.R.

Encapsulation technique for NRL irradiation effects studies.

26p.

NRL-Memo-1481 AD-430751 (December 1963)

NSA 18: 13336 (1964) STAR 2 (17) p.2376 N64-25633
(1964)

STEELE, L.E.; HAWTHORNE, J.R. and WATSON, H.E.

Irradiation effects on structural materials.

Quarterly progress report, 1 November 1962-31 January 1963.

35p. and 1 February-30 April 1963. 15p.

NRL-Memo-1393 AD-600303 (15 February 1963)

NRL-Memo-1424 AD-420048 (15 May 1963)

NSA 18: 16527 (1964) and 19: 9735 (1965)

STAR 2 (21) p.3035 N64-29660 (1964) and 3 (1) p.142
N65-10216 (1965)

STEELE, L.E.; HAWTHORNE, J.R. and SERPAN, C.Z. JR.

Irradiation effects on structural materials.

Quarterly progress report, 1 August-31 October 1963. 33p.

NRL-Memo-1468 (15 November 1963)

NSA 19: 7980 (1965)

STEELE, L.E. and HAWTHORNE, J.R.

Neutron embrittlement of reactor pressure vessel steels.

36p.

NRL-5984 AD-423826 (22 October 1963)

NSA 18: 7307 (1964) STAR 2 (3) p.309 N64-12260 (1964)

1963

STEELE, L.E. and HAWTHORNE, J.R.

Neutron embrittlement of the Sl-1 reactor pressure vessel
compared with experimental observations on other steels
Trans. Amer. Nucl. Soc. 6: 150-1 (June 1963)
NSA 17: 26171 (1963) no abstract

STEELE, L.E. and HAWTHORNE, J.R.

Surveillance of critical reactor components to assess
radiation damage. 29p.
Preprint paper no. 67 New York Engineers Joint Council (1962)
Welding Res. Council - Bul. Ser. 87: 18-23 (April 1963)
NSA 16: 29468 (1962) EI 1963 p.1365

1962

ACHTER, M.R. and SHAHINIAN, P.

Effect of environment on the strength of metals. 23p.
National symposium on effects of space environment on materials,
St. Louis (7-9 May 1962)
STAR 1 (2) p.113 N63-10921 (1963)

BOYLE, R.W.; SULLIVAN, A.M. and KRAFFT, J.M.

Determination of plane strain fracture toughness with
sharply notched sheets. 9p.
ASME-paper 62-MET-B for meeting (-13 April 1962) not in ASME
index 1957-1970
EI 1962 p.66

1962

BROWN, W.F. Jr. (NASA, Lewis Research Center, Cleveland)

New investigations relating to stress concentration
under creep conditions: Summary of session

J. Basic Eng. (Trans. ASME D) 84 (2) 243-6 (June 1962)

HAWTHORNE, J.R.; STEELE, L.E. and PELLINI, W.S.

How neutron exposure alters reactor steels

Mech. Eng. 84: 64-5 (May 1962)

NSA 17: 16752 (1963)

IRWIN, G.R.

Analytical aspects of crack stress field problems. 28p.

T & AM report 213 (March 1962)

EI 1963 p.2122

IRWIN, G.R.

Crack-extension force for a part-through crack in a plate

J. Appl. Mech. (Trans. ASME E) 29 (4) 651-4 (December 1962)

discussion 30 (3) 475-6 (September 1963)

IRWIN, G.R. and SRAWLEY, J.E.

Progress in development of crack toughness fracture tests

Materialpruefung Materials Testing Materiaux 4 (1) 1-11

(20 January 1962)

EI 1962 p.764

IRWIN, G.R.

Relation of crack-toughness measurements to practical
applications. 13p.

ASME Paper 62-MET-15 for meeting (9-13 April 1962) not in ASME
index 1957-1970

EI 1962 p.764

1962

KRAFFT, J.M.; SULLIVAN, A.M. and BOYLE, R.W.

Effect of dimensions on fast fracture instability of
notched sheets

Crack propagation symposium, Cranfield (September 1961) ed.

Owen Jones. Cranfield, College of Aeronautics (1962) p.8-28

STAR 1 (20) p.1606 N63-20084 (1963)

KRAFFT, J.M. and SULLIVAN, A.M.

Effects of speed and temperature on crack toughness and
yield strength in mild steel. 24p.

NRL-5776 (30 April 1962)

STAR 1 (12) p.824 N63-15366 (1963)

KRAFFT, J.M. and SULLIVAN, A.M.

On effects of carbon and manganese content and of grain
size on dynamic strength properties of mild steel. 28p.

SSC-139 (27 December 1961)

US Ship Structure Committee

ASM Trans. 55 (1) 101-18 (March 1962)

EI 1963 p.1954 and 1962 p.1344

LANGE, E.A. and KLIER, E.P.

Study of fracture development and materials properties in
PVRC vessels 1 and 2

Welding J. 41 (2) 53s-61s (February 1962)

EI 1962 p.1061

1962

PELLINI, W.S.; STEELE, L.E. and HAWTHORNE, J.R.

Analysis of engineering and basic research aspects of
neutron embrittlement of steels

Welding J. 41: 455s-69s (October 1962)

NSA 17: 2037 (1963) EI 1963 p.2080

STEELE, L.E. and HAWTHORNE, J.R.

Irradiation effects on reactor structural materials.

Quarterly progress report no. 1, 1 May-31 July 1962. 14p.

NRL-Memo-1351

NSA 19: 996 (1965)

1961

DANEK, G.J. Jr.; SMITH, H.H. and ACHTER, M.R.

High-temperature fatigue in controlled environments. 14p.

NRL-5665 (27 June 1961)

NSA 16: 526 (1962)

DANEK, G.J. Jr.; SMITH, H.H. and ACHTER, M.R.

An optical technique for the measurement of plastic
bending strains at elevated temperatures. 6p.

(nickel, 316 stainless steel, inconel X)

NRL-5661 (13 June 1961)

NSA 15: 31119 (1961)

1961

HAWTHORNE, J.R. and STEELE, L.E.

The effect of neutron irradiation on the Charpy V and drop-weight test transition temperature of various steels and weld metals. 28p.

NRL-5479 (3 March 1960)

ASTM special technical publication 286 (January 1961)

Symposium on radiation effects and radiation dosimetry

NSA 14: 19513 (1960) EI 1961 p.926

HAWTHORNE, J.R.; STEELE, L.E. and PELLINI, W.S.

Effects of nuclear radiation on the properties of reactor structural materials. 18p.

NRL-5731 (16 November 1961)

NSA 16: 9263 (1962)

HAWTHORNE, J.R.

Studies of radiation effects and recovery of notch ductility of pressure-vessel steels

Iron & Steel Inst. - Special report 69: 343-69 (1961)

Steels for reactor pressure circuits; symposium, London

(30 November-2 December 1960)

EI 1962 p.878 no abstract

IRWIN, G.R.

Fracturing and fracture mechanics. 32p.

T & AM report 202 (October 1961)

EI 1963 p.1171

1961

IRWIN, George R.

Relatively unexplored aspects of fracture mechanics. 52p.
T & AM 240 (October 1961)
STAR 1 (9) p.628 N63-14097 (1963)

PELLINI, W.S. and SRAWLEY, J.E.

Evaluating fracture toughness
J. Metals 13 (3) 195-8 (March 1961)
EI 1961 p.1309 no abstract

PELLINI, W.S. and SRAWLEY, J.E.

Procedures for the evaluation of fracture toughness of
pressure-vessel materials. 26p.
NRL-5609 (23 February 1961)
NSA 15: 23731 (1961)

SHAHINIAN, P.; ACHTER, M.R. (NRL) and PENNINGTON, W.A.
(Univ. Maryland)

Effect of cold work and temperature on strength and
structure of steel. 20p.
Am. Soc. Metals preprint 234 for meeting (17-21 October 1960)
ASM Trans. 55: 817-36 (1961)
EI 1960 p.1414

SHAHINIAN, P. and ACHTER, M.R.

The effect of cold work and temperature on the strength
and structure of steel. 19p.
NRL-5603 (26 January 1961)
NSA 15: 21152 (1961)

1961

STEELE, L.E. and HAWTHORNE, J.R.

Effect of irradiation temperature of neutron-induced changes
in notch ductility of pressure-vessel steels. 9p.

NRL-5629 (13 April 1961)

NSA 15: 25268 (1961)

STEELE, L.E. and HAWTHORNE, J.R.

Neutron-induced changes in notch ductility of reactor pressure
vessel steels

Trans. Amer. Nucl. Soc. 4: (1) 92-3 (June 1961)

NSA 15: 21220 (1961) no abstract

STEELE, L.E.

Practical neutron dosimetry for steel irradiation studies

Iron & Steel Inst. - special report 69: 328-42 (1961)

Steels for reactor pressure circuits; symposium, London

(30 November-2 December 1960)

EI 1962 p.678 no abstract

1960

BEACHEM, C.D. and SRAWLEY, J.E.

Crack propagation tests of high-strength sheet materials. V.
Air-melted and consumable AWS 6434 steel. 22p.

NRL-5907 (2 May 1960)

NSA 14: 25951 (1960)

1960

HAWTHORNE, J.R. and STEELE, L.E.

Preliminary observations on the effectiveness of heat treatment for the recovery of properties of irradiated steels. 13p.

NRL-5582 (16 November 1960)

NSA 15: 16133 (1961)

HAWTHORNE, J.R. and STEELE, L.E.

Studies of radiation effects and recovery of notch ductility in pressure-vessel steels

TID-7620 part 1 pp.168-90

Minutes of the annual AEC welding conference, San Antonio, Texas (3-6 October 1960)

NSA 17: 23918 (1963)

HOWELLS, H.C. and LANGE, E.A.

Heat treatment of Mn-V-Ni age-hardening austenitic steel. 10p.

NRL-5464 (8 February 1960)

Mod. Cast. 37 (5) 115-19 (May 1960)

NSA 14: 19324 (1960) EI 1960 p.1422

IRWIN, C.R.

Fracture mode transition for crack traversing plate

J. Basic Eng. (ASME Trans. D) 82 (2) 417-23 (June 1960)

EI 1960 p.1099

IRWIN, C.R. and KIES, J.A.

Fracture theory applied to high-strength steels

Metal Progr. 78 (2) 73-8 (August 1960)

EI 1960 p.1410

1960

PELLINI, William S. and HARRIS, William J. Jr.

Flight into the thermosphere. IV. Material requirements
for radiative systems

Metal Progr. 77 (6) 83-97 (June 1960)

NSA 14: 16019 (1960)

SRAWLEY, J.E. and BEACHEM, C.D.

Crack propagation tests of high-strength sheet materials.

IV. The effect of warm pre-straining. 20p.

NRL-5460 (29 January 1960)

NSA 14: 15990 (1960)

STEELE, L.E. (Northern Aluminium Co. Ltd., Regerstone, England)
and COLLINS, D.L.W. (Aluminium Labs., Banbury, England)

"Giant" chromium intermetallics in commercial Al-Zn-Mg-Cu
alloys

J. Inst. Metals 88: 260-5 (February 1960)

NSA 14: 12972 (1960)

STEELE, L.E. and HAWTHORNE, J.R.

Neutron dosimetry for materials irradiation studies

ASTM special technical publication 286: 111-26 (1960)

NSA 15: 17113 (1961)

STEELE, L.E. and HAWTHORNE, J.R.

Neutron flux measurements for materials irradiation
experiments at Argonne National Laboratory, Brookhaven
National Laboratory, Oak Ridge National Laboratory and
National Reactor Test Station. 12p.

NRL-5483 (16 March 1960)

NSA 14: 20035 (1960)

1959

ACHTER, M.R. (NRL) and FOX, H.W. (Office of Naval Research, Washington, D.C.)

The effect of surface absorption on crack propagation
Trans. Met. Soc. AIME 215 (2) 295-6 (1959)
HA 27: 37 (1959)

BABECKI, A.J.; PUZAK, P.P. and PELLINI, W.S.

Report of anomalous "brittle failures of heavy steel forgings at elevated temperatures". 12p.
ASME paper 59-NET-6 for meeting (29 April-3 May 1959) not in ASME index 1957-1970
EI 1959 p.438

BROWN, B.F.

Notch sensitivity effects in stress corrosion and hydrogen embrittlement tests on high strength steels
Corrosion 15 (8) 17-20 (August 1959)
EI 1959 p.1358

DANEK, G.J. Jr. and ACHTER, M.R.

High-temperature, vacuum and controlled-environment fatigue tester
ASTM Bul. 234: 48-52 (December 1958) and 237: 60
(July 1959)
EI 1959 p.767

1959

HAWTHORNE, J.R. and STEELE, L.E.

A remotely operated Charpy test machine for radioactive specimens. 10p.

NRL-5305 (12 March 1959)

7th hot laboratories and equipment conference, Cleveland, Ohio (7-9 April 1959). Proceedings, New York, ASME (1959) p.239-46
NSA 13: 19130 and 17615 (1959) EI 1960 p.197

HOWELLS, N.C. and LANGE, E.A.

Foundry characteristics of Mn-V-Mo. 12p.

NRL-5285 (30 January 1959)

NSA 13: 11182 (1959)

HOWELLS, N.C. and LANGE, E.A.

Mn-V-Mo age-hardening austenitic steel, foundry characteristics
Mod. Cast. 36 (3) 55-8 (September 1959)
EI 1959 p.1336

KRAFFT, J.M. and SULLIVAN, A.H.

Effect of grain size and carbon content on yield delay-time
of mild steel

ASM Trans. 51: 643-65 (1959)

EI 1959 p.1329

1959

MANSON, S.S.; SUCCOP, G. and BROWN, W.F. Jr. (National Advisory Committee on Aeronautics, Lewis Flight Propulsion Lab., Cleveland, Ohio)

The application of time-temperature parameters to accelerated creep-rupture testing. 15p.

Trans. Amer. Soc. Metals preprint 106 (1958)

Trans. Amer. Soc. Metals 51: 911-34 (1959)

MA 26: 626 and 965 (1959)

PUZAK, P.P. and BABECKI, A.J.

Normalization procedures for NRL drop-weight test

Welding J. 38 (5) 209s-18s (May 1959)

EI 1959 p.1358

PUZAK, P.P. and STOOP, J.

Simple laboratory bulge tests for sheet-metal fracture-transition studies and for weldment performance evaluation. 16p.

NRL-5347 (27 May 1959)

MSA 13: 22416 (1959)

SALKOVITZ, E.I. and SCHINDLER, A.I.

Nuclear irradiation effects on magnetic alloys. 22p.
4th radiation effects symposium, Cincinnati, Ohio (15-16 September 1959). General session papers, paper 4

MSA 15: 5622 (1961)

1959

SRAWLEY, J.E.

Charpy-V transition temperatures of ferritic iron alloys.

I. Iron-oxygen and iron-aluminium. 20p. II. Iron-chromium and iron-chromium-aluminium. 18p.

NRL-5290 (6 February 1959) and NRL-5367 (24 August 1959)

NSA 13: 11866 and 22417 (1959)

SRAWLEY, J.E. and BEACHEM, C.D.

Crack propagation tests of high-strength sheet materials.

III. Low-alloy air-hardened steel. 15p.

NRL-5348 (30 July 1959)

NSA 13: 20179 (1959)

SRAWLEY, J.E.

Hydrogen-embrittlement susceptibility of some steels and nonferrous alloys. 28p.

NRL-5392 (19 October 1959)

NSA 14: 2736 (1960)

STEELS, L.E. and HANTHORNE, J.R.

A remotely controlled drop-weight test machine for brittle fracture studies

NRL-5278 (16 January 1959)

7th hot laboratories and equipment conference, Cleveland, Ohio (7-9 April 1959). Proceedings, New York, ASME (1959) p.232-8
NSA 13: 8938 and 17614 (1959)

1958

BABECKI, A.J. and PUZAK, P.P.

Fabrication and service factors involved in failure of
welded steam receivers

Welding J. 37 (7) 320s-5s (July 1958)

EI 1958 p.1176

IRWIN, G.R.; KIES, J.A. and SMITH, H.L.

Fracture strengths relative to onset and arrest of
crack propagation

Proc. Amer. Soc. Test. Mat. 58: 640-60 (1958)

MA 27: 711 (1959)

LANGE, E.A.; ROWELLS, N.C. and BURGESSKI, A.

Cast age-hardenable austenitic steels. 16p.

NRL-5140 (2 April 1958)

Mod. Cast. 34 (4) 53-9 (October 1958)

NSA 12: 8449 (1958) EI 1958 P.1197

PUZAK, P.P.; BABECKI, A.J. and PELLINI, W.S.

Correlation of brittle-fracture service failures with
laboratory notch-ductility tests

Welding J. 37 (9) 391s-410s (September 1958)

EI 1958 p.1214

SHAWLEY, J.E. and BEACHEM, C.D.

Crack propagation tests of high-strength sheet steels using
small specimens. 30p.

NRL-5127 (7 March 1958)

NSA 12: 8448 (1958)

1958

SRAWLEY, J.E. and BEACHEM, C.D.

Crack propagation tests of some high-strength sheet steels.

29p.

NRL-5263 (19 December 1958)

NSA 13: 5573 (1959)

SRAWLEY, J.E.

Fuel ash attack on aluminium coated stainless steel

Corrosion 14 (1) 54-6 (January 1958)

EI 1958 p.1174

SRAWLEY, J.E.

Iron-chromium-aluminium alloys. 19p.

NRL-5124 (28 February 1958)

NSA 12: 9830 (1958)

VANNES, P.N.; STRAUSS, S.W. and BROWN, B.F.

Amino acid cadmium plating solutions for ultra-high strength
steel

Electroplat. Metal Finish 11 (3) 85-7 (March 1958)

Summary of NRL 4906

EI 1958 p.158

WEERTMAN, J.

Theory of creep of dispersion-hardened alloys. 10p.

NRL-5123 (27 February 1958)

NSA 12: 9829 (1958)

1957

IRWIN, G.R.

Analysis of stresses and strains near end of crack traversing plate

J. Appl. Mech. (ASME Trans.) 24 (3) 361-4 (September 1957)

discussion 25 (2) 299-301 (June 1958)

EI 1957 p.879

JONES, M.H.; NEWMAN, D.P. and BROWN, W.F. Jr. (NACA Lewis Flight Propulsion Lab., Cleveland)

Creep damage in Cr-Mo-V steel as measured by retained stress rupture properties

ASME paper 55-A-175 for meeting (13-16 November 1955)

ASME Trans. 79 (1) 117-26 (January 1957)

EI 1956 p.1032 and 1957 p.1113

PUZAK, P.P.

Explosion-bulge-test performance of low-carbon Ni-Cr-Mo-B quenched and tempered steel weldments. 12p.

NRL-4919 (5 April 1957)

NSA 11: 8922 (1957)

PUZAK, P.P.

Explosion-bulge-test performance of machine welded 1 inch thick HY-80 steel. 26p.

NRL-Memo-691 (April 1957)

NSA 14: 622 (1960)

PUZAK, P.P. (NRL) and RISCHALL, H. (Utica Drop Forge & Tool Co., formerly NRL)

Further studies on stainless-steel hot cracking

Welding J. 36 (2) 57a-61a (February 1957)

EI 1957 p.1245

1957

PUZAK, Peter P.

Procedures developed at NRL for notch toughness evaluation. 57p.
WASH-733 pp.274-330 (April 1957; decl. 23 November 1959)
Minutes 6th annual AEC welding committee meeting, ORNL (25-26
September 1956)
NSA 14: 8600 (1960)

SHAHINIAN, Paul and LANE, Joseph R.

Investigation of the creep-rupture properties of Mo-V low-alloy
steels. 24p.
NRL-4928 (1 April 1957)
NSA 11: 8008 (1957)

1956

BISHOP, H.F.; ACKERLIND, C.G. and PELLINI, W.S.

Investigation of metallurgical and mechanical effects in the
development of hot tearing. 19p.
NRL-4730 (28 March 1956)
NSA 10: 9323 (1956)

BISHOP, H.F.; SANDOZ, G.A.; HOWELLS, N.C. and PELLINI, W.S.

Notch ductility of commercial malleable irons. Final report
NRL-4713 (20 March 1956)
NSA 10: 7715 (1956)

1956

BRANDT, F.A.; BISHOP, H.F. and PELLINI, W.S.

Notch ductility of type 410 (12% Cr) stainless steel. 30p.

ASM preprint 3 for meeting (17-21 October 1955)

ASM Trans. 48: 368-90 (1956)

EI 1955 p.1026

BROWN, B.F.

Effect of baking on delaying fracture of electropatented ultra high-strength steel. 19p.

NRL-4839 (6 September 1956)

NSA 11: 317 (1957)

IRWIN, G.R.

Onset of fast crack propagation in high strength steel and aluminium alloys. 17p.

NRL-4763 (24 May 1956)

NSA 10: 10193 (1956)

KRAFFT, J.M.

Effect of temperature on delayed yielding of mild steel for short loading duration. 15p.

ASM preprint 29 for meeting (17-21 October 1955)

ASM Trans. 48: 249-64 (1956)

EI 1955 p.1028

MOREY, R.E. and BISHOP, H.F.

Notch ductility of austenitic modular irons. Final report.

22p.

NRL-4718 (6 March 1956)

NSA 10: 7716 (1956)

1335

PELLINI, W.S.

Notch ductility of weld metal
 Welding J. 35 (5) 217s-33s (May 1956)
 EI 1956 p.1152

PUZAK, P.P. and PELLINI, W.S.

Evaluation of significance of Charpy tests for quenched
 and tempered steels
 Welding J. 35 (6) 275s-90s (June 1956)
 EI 1956 p.1032

PUZAK, P.P. and RISCHALL, H.

Further studies on stainless-steel hot cracking. 12p.
 NRL-4861 (22 October 1956)
 NSA 11: 4883 (1957)

PUZAK, P.P.; ABSLETT, W.R. and PELLINI, W.S.

Hot cracking of stainless steel weldments. 19p.
 NRL-4597 (12 July 1955)
 Welding J. 35 (1) 9s-17s (January 1956)
 NSA 10: 849 (1955) EI 1956 p.1151

SESSLER, J.G. (Syracuse Univ.) and BROWN, H.W.P. Jr. (NACA
 Lewis Flight Propulsion Lab., Cleveland)

Notch and smooth-bar stress-rupture characteristics of several
 heat-resistant alloys (Inconel X) in the temperature range
 between 600° and 1000°F
 ASTM Proc. 56: 738-52 (1956)
 NA 24: 152 (1956) and 25: 247 (1957)

1956

SHAHINIAN, Paul and LANE, Joseph R.

Investigation of modified 12% chromium steels for intermediate temperature applications. 25p.

NRL-4731 (30 March 1956)

NSA 10: 9324 (1956)

SHAHINIAN, Paul and LANE, J.R.

Modify 12 pct Cr steels for better properties

Iron Age 178 (17) 103-12 (October 1956)

NSA 11: 352 (1957) EI 1956 p.997

SHAWLEY, J.E.

Aluminium coatings on stainless steel. 4lp.

NRL-4838 (5 September 1956)

NSA 11: 1077 (1957)

STADELMAYER, H. (Dept. Engineering Research, North Carolina State College, Raleigh, NC) and BROWN, B.P. (NRL)

Influence of elastic stresses on recrystallization textures

Z. Metallk. 47 (1) 1-8 (January 1956) (In German)

EI 1956 p.613

1955

BROWN, W.F. Jr. (NASA Lewis Flight Propulsion Lab., Cleveland)

Strength limitations of high strength steels at moderately elevated temperatures

Strength limitation of metals. 2nd Sagamore research conference. Washington, Office of Technical Services (1955) pp.258-68

EI 1956 p.869 no abstract

1955

CHAPIN, E.J. and FRISKE, W.H.

A metallurgical evaluation of refractory compounds for containing molten titanium. III. Borides and sulfides. 34p.

NRL-4478 (17 January 1955)

NSA 9: 2248 (1955)

IRWIN, C.R.

Onset of fast crack propagation in high strength steel and aluminum alloys

Strength limitation of metals. 2nd Sagamore research conference. Washington, Office of Technical Services (1955) pp.289-305
EI 1955 p.869 no abstract

KLIER, E.P.

Effects of transformations and precipitations on strength
Strength limitations of metals. 2nd Sagamore research conference, proceedings. Washington, Office of Technical Services (1955)
pp.84-102

EI 1955 p.869 no abstract

PUZAK, P.P.; SCHUSTER, H.E. and PELLINI, W.S.

Applicability of Charpy-V tests

Welding J. 33 (9) 433s-41s (September 1954) and 34 (3)
131s and 156s (March 1955)
EI 1954 p.1171 and 1955 p.1146

PUZAK, P.P. and PELLINI, W.S.

Crack arresting by overlays of notch-tough weld metal

Welding J. 34 (12) 577s-81s (December 1955)
EI 1956 p.1151

1955

PUZAK, P.P. and PELLINI, W.S.

Effect of temperature on the ductility of high-strength structural steels loaded in the presence of sharp cracks. 31p.
NRL-4545 (6 May 1955)
NSA 10: 182 (1956)

PUZAK, P.P. and PELLINI, W.S.

Evaluation of notch bend specimens
Welding J. 34 (1) 59a-61a (January 1955)
EI 1955 p.1028 no abstract

RARING, R.H. and SHANINIAN, Paul

Mechanical properties of carbon steel thimble intended for pressure vessel service at 600-650°F. 11p.
NRL-Memo-438 (March 1955)
NSA 11: 4584 (1957)

RINEHOLDT, J.A. and RARING, R.H.

The effect of gases in steel. 20p.
NRL-4683 (7 December 1955)
NSA 10: 4661 (1956)

1956

ABLETT, W.R. and PELLINI, W.S.

Factors which influence weld hot cracking
Welding J. 33: 83a-90a (February 1954)
NSA 8: 7018 (1954) MA 22: 402 (1954)
EI 1954 p.1137

1954

APBLETT, W.R. Jr.; DUNPHY, R.P. and PELLINI, W.S.

Transformation of Cr-Mo steels during welding
 Welding J. 57s-64s (January 1954)
 NSA 8: 7016 (1954) EI 1954 p.1173

CHAPIN, E.J. and PRISKE, W.H.

A metallurgical evaluation of refractory compounds
 containing molten titanium. I. Oxides. II. Carbon, graphite
 and carbides. 42p. and 25p.
 NRL-4447 (18 November 1954) and NRL-4467 (15 December 1954)
 NSA 9: 2246-7 (1955)

IRWIN, G.R. and KIES, J.A.

Critical energy rate analysis of fracture strength
 Welding J. 33 (4) 193s-8s (April 1954)
 EI 1954 p.1053

PELLINI, W.S.; SANDOE, G.A. and BISHOP, H.P.

Drop weight test measures notch ductility
 Iron Age 174 (2) 100-3 (8 July 1954)
 Foundry 82 (9) 114-9 263-6 (September 1954)
 EI 1954 p.154

PELLINI, W.S.

Foundry research in England
 Foundry : (3) 112-3 296-302 (March 1954)
 EI 1954 p.416

1954

PELLINI, W.S. (NRL) and ESCHBACHER, E.W. (Buships Welding and Casting Branch, formerly NRL)

Performance of weldments and prime plate of ABS-B steel

Welding J. 33 (10) 524s-31s (October 1954)
EI 1954 p.1189

PUZAK, P.P.; SCHUSTER, M.E. and PELLINI, W.S.

Applicability of Charpy test data

Welding J. 33 (9) 433s-41s (September 1954)
EI 1954 p.1171

PUZAK, P.P.; SCHUSTER, M.E. and PELLINI, W.S.

Crack-starter tests of ship fracture and project steels

Welding J. 33 (10) 481s-95s (October 1954)
EI 1954 p.1051

PELLINI, W.S. and ESCHBACHER, E.W.

Ductility transition of weld metal

Welding J. 33 (1) 16s-20s (January 1954)
EI 1954 p.1168

PUZAK, P.P. and PELLINI, W.S.

Evaluation of notch-bend specimens

Welding J. 33 (4) 167s-92s (April 1954)
EI 1954 p.1054

1954

SCHWARTZBART, Harry (Alloy Engineering & Casting Co.,
Champaign, Ill.) and BROWN, W.F. Jr. (National Advisory Committee
on Aeronautics, Cleveland, Ohio)

Notch-bar tensile properties of various materials and
their relation to the unnotch flow curve and notch sharpness.
24p.

Amer. Soc. Metals preprint 37 (1953)

Trans. Amer. Soc. Metals 46: 998-1020 (1954)

MA 21: 409 and 981 (1954)

1953

IRWIN, G.R.

High-speed strain measurements
Research techniques in physical metallurgy. Amer. Soc. Metals
(1953) pp.205-24
MA 21: 275 (1953)

MYSKOWSKI, E.T.; BISHOP, H.P. and PELLINI, W.S.

Feeding range of joined sections
Trans. Amer. Found. Soc. 61: 302-8 (1953)
MA 22: 150 (1955)

1953

NEWMAN, D.P.; JONES, M.H. and BROWN, W.F. Jr. (Lewis Flight Propulsion Lab., Cleveland)

Time-temperature dependence of the notch effect and influence of notch depth in stress rupture tests on a chromium-molybdenum-vanadium steel

ASTM Proc. 53: 677-92 (1953)

CA 49: 7474d (1955)

PUZAK, P.P. and PELLINI, W.S.

Embrittlement of high-strength ferritic welds

Welding J. 31 (11) 521s-6s (November 1952) and 32 (2) 73s-4s (February 1953)

EI 1953 p.1184

PUZAK, P.P.; ESCHBACHER, E.W. and PELLINI, W.S.

Initiation and propagation of brittle fracture in structural steels

Welding J. 31 (12) 561s-61s (December 1952) and 32 (2) 301s (June 1953)

EI 1953 p.1052

SACHS, G.; BROWN, W.F. Jr. and NEWMAN, D.P. (Syracuse Univ.)

The effect of stress concentrations on the creep strength of materials

Z. Metallk. 44 (6) 233-9 (1953) (In German)

MA 21: 665 (1954) EI 1954 p.1054

CA 46: 6610f (1953)

1952

AFBLETT, W.R. Jr. FELMLEY, C.R. and PELLINI, W.S.

Factors which determine the performance of aluminium
alloy weldments

Welding J. 31: 596s-606s (December 1952)

NSA 7: 2572 (1953)

BISHOP, H.P.; ACKERLIND, C.G. and PELLINI, W.S.

Metallurgy and mechanics of hot-tearing

Trans. Amer. Found. Soc. 60: 818-31 (1952)

MA 21: 478 (1954)

BROWN, W.F. Jr.; JONES, M.H. and NEWMAN, D.P. (National
Advisory Committee Aeronautics, Cleveland)

Influence of sharp notches on the stress-rupture
characteristics of several heat-resisting alloys. 21p.
ASTM preprint 76 (1952) not in ASTM indexes 1940-1956 and
1957-1970

MA 21: 134 (1953) CA 56: 75011 (1952)

IRWIN, G.R. and KIES, J.A.

Fracturing and fracture dynamics

Welding J. 31 (2) 95s-103s (1952)

MA 20: 556 (1952)

LANGE, E.A. and HEIME, R.W. (Dept. Mining & Metallurgy, Univ.
Wisconsin)

A test for hot-tearing tendency

Trans. Amer. Found. Soc. 60: 182-96 (1952)

MA 20: 794 (1953)

1952

PELLINI, William S.

Strain theory of hot tearing

Foundry 80 (11) 124-33, 192, 194, 196, 199 (1952)

MA 20: 657 (1953)

SMITH, H.H. (Am. Steel & Wire Div. U.S. Steel Corp., Cleveland)

Effect of fabricating procedure on notch ductility of
steel

West of Scotland Iron & Steel Inst. J. 59: 121-32 (1951-52)

EI 1953 p.1055

1950

KIES, J.A.; SULLIVAN, A.M. and IRWIN, G.R.

Interpretation of fracture markings

J. Appl. Phys. 21 (7) 716-20 (1950)

MA 18: 519 (1951)